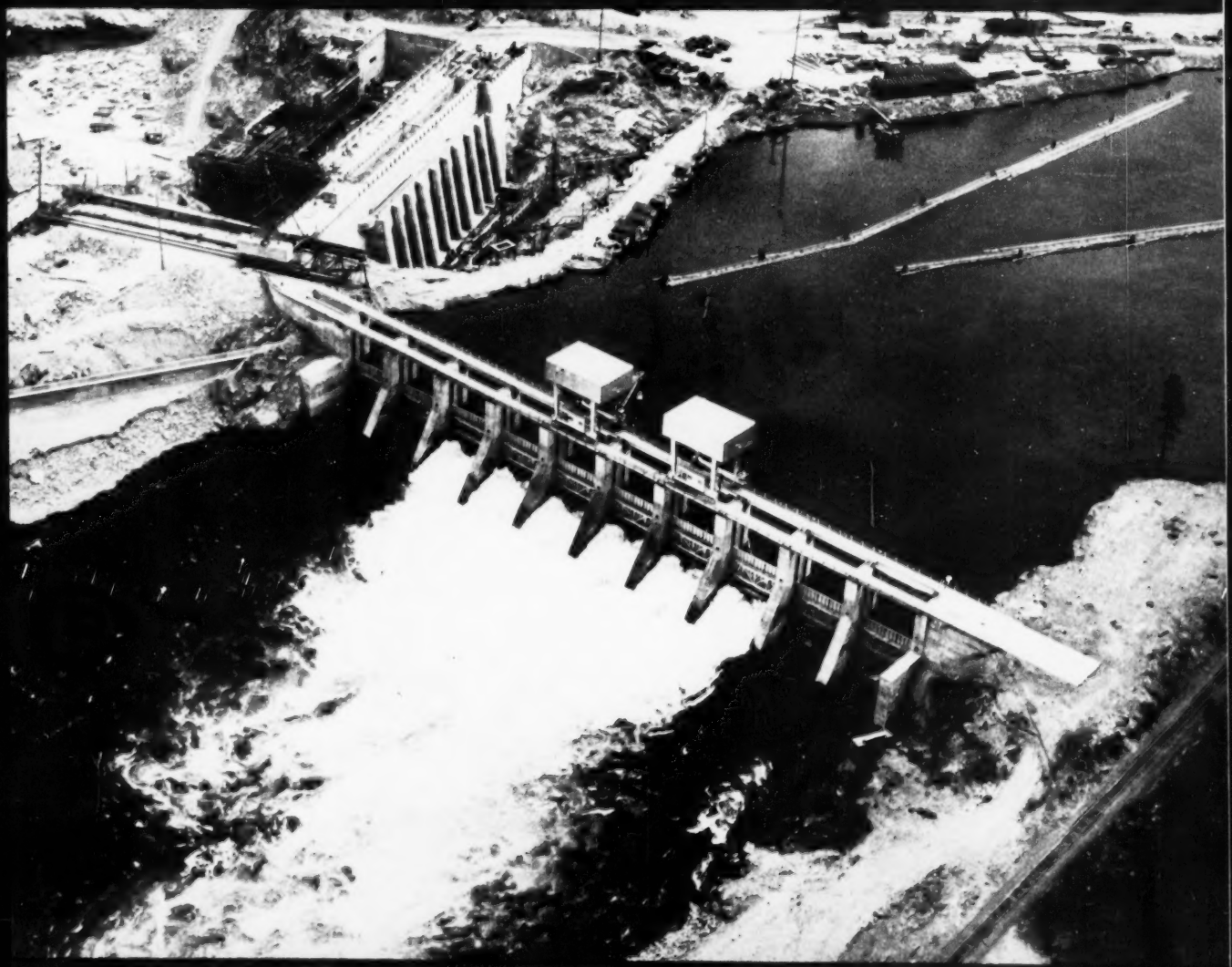
ENGINEERING NEWS-RECORD



★ PORTSMOUTH, O.—A PICTURE REPORT

★ FLOATING MATS TO RIDE TREMORS

A McGRAW-HILL PUBLICATION

These Dallas, Texas building records prove WROUGHT IRON PIPE lives up to its LONGER LIFE reputation

The pipe that lasts the longest costs the least.

"Which piping material will last the longest?"—that's the big question which faces everyone who has the say-so on piping for corrosive services. To find the *right* answer—essential in these days of rising maintenance and replacement charges—more and more cost-conscious planners are turning to *past service records* for their yardstick to selection.

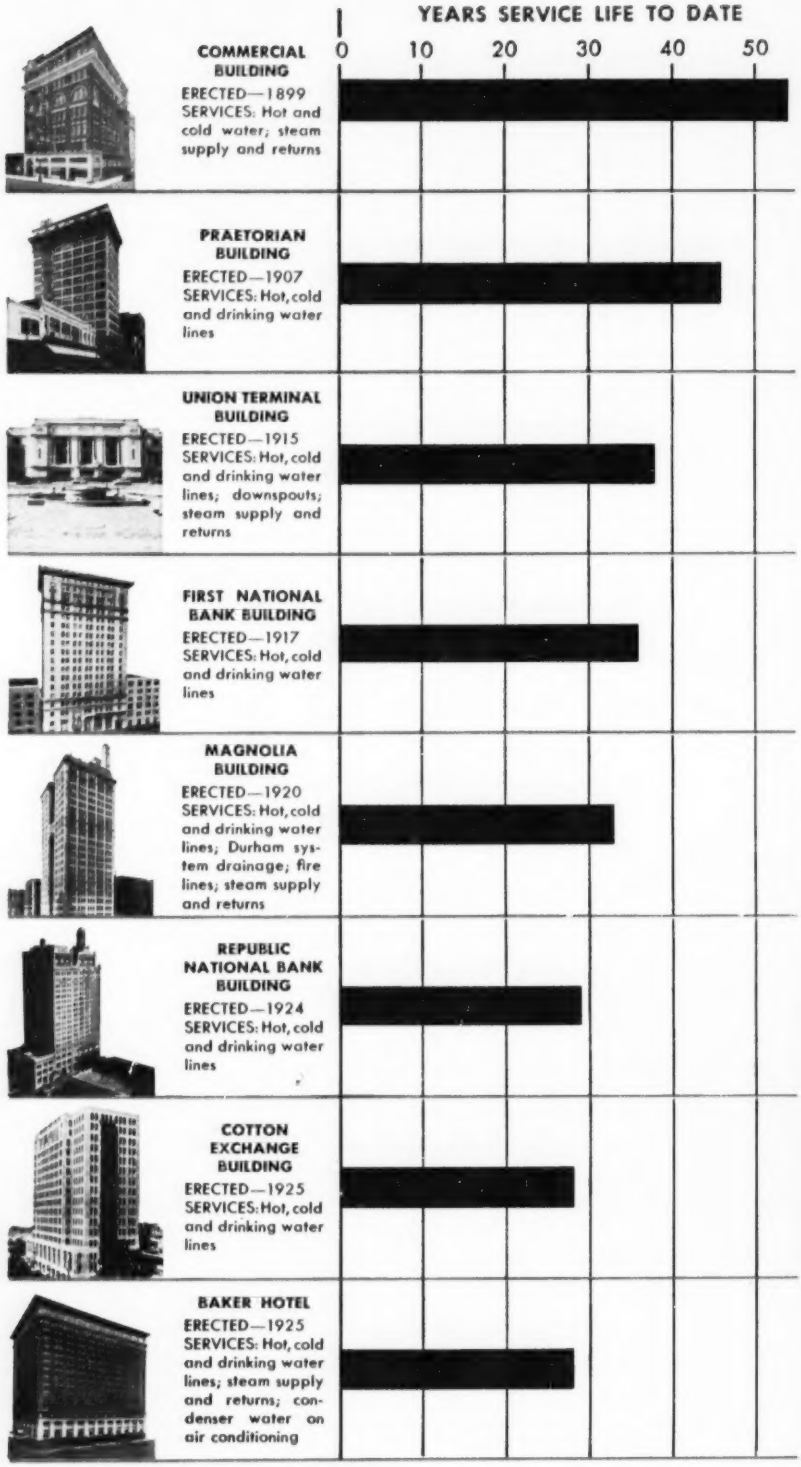
How successfully Byers Wrought Iron pipe "measures up" when engineers and architects go after this how-long-does-it-last story is reflected in the increasing use of the material in every aspect of today's modern building.

Small wonder for this confidence!

Take these eight Dallas Buildings, for example. In each installation, wrought iron pipe is providing long life service at lower cost per year. And designers everywhere are finding similar wrought iron performance records.

If you are in doubt about pipe for some corrosive service, we'll be happy to show you past wrought iron service records to fit your particular problem. Just address your letter to our Engineering Service Department . . . your request will be handled promptly.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, New York.



BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

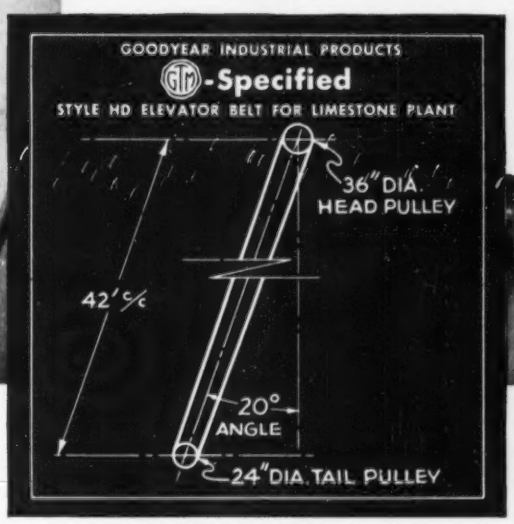
HOW'S THIS FOR SERVICE?

18 Years—5 days per week—
170 TPH of jagged rock to
a total of 4,850,000 tons so far!

THE first elevator belt installed on this elevator from a rock plant primary crusher wore out completely after five years' service handling 4" to 6" size limestone rock. Rock was extremely sharp and abrasive, averaged 100 lbs./cu. ft.

The G.T.M.—Goodyear Technical Man—recommended installing a Goodyear Style HD belt back in 1934. Today, that belt is still in operation 5 days a week—has handled nearly 5,000,000 tons so far—is still operating after tripling the service of the competitive belt.

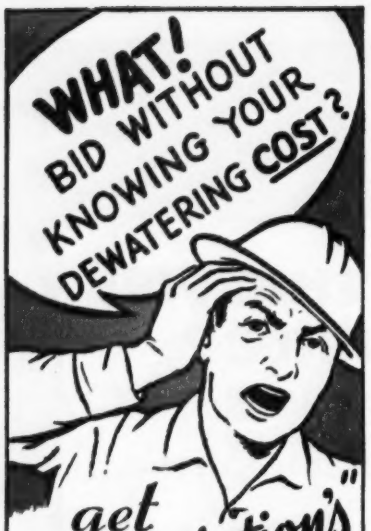
Service like this proves it pays to call in the G.T.M. on your belting problems. Write:
Goodyear, Industrial Products Division
Akron 16, Ohio



YOUR GOODYEAR DISTRIBUTOR *can quickly supply you with Hose, Flat Belts, V-Belts, Packing, Tank Lining, Rubber-Covered Rolls: Look for him in the yellow pages of your Telephone Directory under "Rubber Products" or "Rubber Goods."*

GOODYEAR

THE GREATEST NAME IN RUBBER



get "Foundation's free

DEWATERING PRE-BID SERVICE

Your estimate can prove a costly "guess-timate". It may cost more than you figured—or your estimate may be too high.

Why guess? Bid jobs with confidence!

Get an accurate estimate from dewatering engineers with over 26 years of experience . . . based on actual experience in the soils to be dewatered, on site investigation, on analysis of soil borings.

If wellpoints are not the practical, economical solution, we are qualified to advise other proven methods.

WELLPOINT

Dewatering Systems

RENTALS **SALES**

26 YEARS EXPERIENCE

Foundation Equipment Corporation

Long Island City 1, N.Y.—38th Ave. and 10th St.
EXeter 2-1100

Chicago, Illinois — 2608 W. 111th St.
Hilltop 5-8282

ENGINEERING NEWS-RECORD

Member

Editorial offices: 330 W. 42nd St., New York 36, Tel. LOngacre 4-3000

Number of copies of this issue printed: 61,192

Contents on page 17

Waldo G. Bowman

Editor

E. E. Halmos Jr. ..... *Managing Editor*

V. T. Boughton ..... *Transportation, Power*
F. S. Merritt ..... *Architectural, Structural*
R. H. Dodds ..... *Contracting, Heavy Construction*
S. C. Jensen ..... *Materials and Equipment*
A. J. Fox Jr. ..... *Hydraulics, Water Supply, Sanitation*
J. J. Christie ..... *National Affairs*
A. A. Layne ..... *Labor, Men and Jobs*
J. P. Chamberlain ..... *Business and Finance*
R. W. O'Neill ..... *International, Features*
J. R. Owen ..... *Municipal*
J. R. Carr ..... *Midwest (Chicago)*
L. L. Wise ..... *West (San Francisco)*
N. A. Bowers ..... *Consultant (San Francisco)*
Elsie Eaves ..... *Business News Department*
J. H. Webber ..... *Economics*
J. A. Mahoney, M. O. Wetzel ..... *Construction Reports*
M. W. Roessler, E. R. Huber, Dori Weiss ..... *Statistics, Costs, Prices*
G. T. Orick ..... *Copy Desk*
H. G. Compton ..... *Photography*
T. D. MacGregor, B. J. Lamb, M. V. Leggiero ..... *Copy Rewrite, Layout*
L. T. Tarpey, J. C. Greenough ..... *Printing*

Washington News Bureau, Room 1189 National Press Building: G. B. Bryant, Jr., *Manager*, Glen Bayless, Jay Flocken, Boyd France, J. M. Gambatese, Sam Justice, W. H. Kearns, J. L. Kent, Craig Lewis, D. O. Loomis, Jesse Mock, Gladys Montgomery, A. L. Moore, M. A. Relchek, Caroline Robertson, V. B. Smith, W. B. Whichard, Jr.

Domestic News Bureaus: Atlanta, 1321 Rhodes-Haverty Bldg., E. D. White; **Cleveland,** 1510 Hanna Bldg., R. A. Cochran; **Detroit,** 856 Penobscot Bldg., S. H. Brams; **Houston,** 1303 Prudential Bldg., J. A. Lee; **San Francisco,** 68 Post Street, M. C. Ralston; **Los Angeles,** 1111 Wilshire Blvd., John Shinn; **Seattle,** 6040 Fifth Ave., N.E., Ray Bloomberg.

Correspondents: Albany, Albuquerque, Augusta, Me., Austin, Boston, Boulder, Baltimore, Birmingham, Bismarck, Charleston (W. Va.), Charleston (S. C.), Columbus, Cincinnati, Cleveland, Chicago, Cheyenne, Dallas, Denver, Detroit, Durham, Harrisburg, Helena, Houston, Hartford, Indianapolis, Jackson, Miss., Jacksonville, Jefferson City, Kansas City (Mo.), Lansing, Lincoln, Little Rock, Miami, Memphis, Minneapolis, Montgomery, Milwaukee, New Orleans, Norfolk, Omaha, Oklahoma City, Philadelphia, Pittsburgh, Portland (Ore.), Providence, Phoenix, Pierre, St. Louis, Schenectady, Syracuse, St. Paul, Seattle, Salt Lake City, Spokane, Topeka, Trenton, Wilmington. **Canada:** Montreal, Toronto, Ottawa, Victoria, Regina.

Foreign News Bureaus: J. K. Van Denburg, Jr., **New York;** G. W. Schroder, **Frankfurt;** Nathaniel McKitterick, **London;** Herbert Leopold, **Manila;** John Wilhelm, **Mexico City;** Ross Hazeltine, **Paris;** A. W. Jessup, **Tokyo;** L. I. Holmes, **Sao Paulo. Correspondents:** Amsterdam, Athens, Bangkok, Bogota, Bombay, Brussels, Buenos Aires, Caracas, Copenhagen, Geneva, Havana, Helsinki, Johannesburg, Lima, Madrid, Melbourne, Oslo, Rome, Stockholm, Sydney, Tehran, and 21 other principal cities and countries.

Robert F. Boger

Publisher

November 19, 1953 ENGINEERING NEWS-RECORD Vol. 151, No. 21

Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Donald C. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 North Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address. Subscriptions are solicited only from persons with an identifiable commercial or professional interest in construction and building. Position and company connection must be indicated on subscription orders.

Single copies 35¢. Subscription rates—United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. Canada, $8.00 a year; $12.00 for two years; $16.00 for three years. Other Western Hemisphere countries, $15.00 a year; $25.00 for two years; $30.00 for three years. All other countries, $20.00 a year; $30.00 for two years; $40.00 for three years. Entered as second class matter October 29, 1936, at the Post Office at Albany, N. Y., under Act of Mar. 3, 1879. Printed in U. S. A.

Copyright 1953 by McGraw-Hill Publishing Co., Inc.—All Rights Reserved.

Count 'em again!

53 NORTHWESTS on the WEST VIRGINIA TURNPIKE

The advertisement below appeared recently in Engineering News Record. Since that time 15 Northwests have joined the other 38 in building this rugged engineering project. The count for today appears at the right!

53
NORTHWESTS on the
WEST VIRGINIA TURNPIKE
The West Virginia Turnpike is adding another epic to the story of road building. Here, through the mountains, rugged terrain is putting a real test on equipment. It is significant that 38 Northwests are helping to build this latest of famous Turnpikes—Thirty eight—more than any other make of similar equipment.
These Northwests are owned by contractors whose names alone are testimonials to the quality of Northwest performance. Look over the list. Where could you find a testimonial that would better assure you that Northwest Equipment will give you the type of service you are looking for?
NORTHWEST ENGINEERING COMPANY
1502 Field Bldg., 135 South LaSalle Street, Chicago 3, Illinois
1 Two Model 80-D's
2 One Model 25
One Model 80-D
3 One Model 80-D
4 Three Model 80-D's
5 Two Model 6's
6 One Model 6
W. E. Graham, Cleveland, N.C.
Two Model 6's
One Model 25
One Model 80-D
Latrobe Constr. Co., Latrobe, Pa.
Three Model 80-D's
One Truck Crane
H. W. Holt & Son, Columbus, Ohio
Two Model 80-D's
Oman Constr. Co., Nashville, Tenn.
One Model 25
One Model 80-D
Central Pa. Quarry, Stripping & Constr. Co., Hazelton, Pa.
Three Model 80-D's
Reed Kuhn, Elysburg, Pa.
One Model 25
One Truck Crane
Clark Farrell & H. N. Rogers
Pine Bluff, Ark. — Memphis, Tenn.
One Model 80-D
One Model 78-D
Two Model 6's
One Model 4
Nello Teer, Durham, N. C.
Three Model 80-D's
D. R. Agnew, Ronceverte, W. Va.
One Model 6
Ralph Mills Co. & Morrison Knudsen
Salem, Va. Boise, Idaho
Five Model 80-D's
Two Model 6's
Condon Cunningham & Kiewit, Omaha, Neb.
Three Model 80-D's
One Model 6
S. J. Groves & Son, Minneapolis, Minn.
One Model 6
Has Your Shovel Stood the ROCK TEST
NORTHWEST
SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

W. E. Graham, Cleveland, N.C.
Two Model 6's
One Model 25
One Model 80-D

Latrobe Constr. Co., Latrobe, Pa.
Three Model 80-D's
One Truck Crane

H. W. Holt & Son, Columbus, Ohio
Two Model 80-D's

Oman Constr. Co., Nashville, Tenn.
One Model 25
One Model 80-D

Central Pa. Quarry, Stripping & Construction Co., Hazelton, Pa.
Three Model 80-D's

Reed Kuhn, Elysburg, Pa.
One Model 25
One Truck Crane

Clark Farrell & H. N. Rogers
Pine Bluff, Ark. — Memphis, Tenn.
One Model 80-D
One Model 78-D
Two Model 6's
One Model 4

Nello Teer, Durham, N. C.
Four Model 80-D's

D. R. Agnew, Ronceverte, W. Va.
One Model 6

Ralph Mills Co. & Morrison Knudsen
Salem, Va. — Boise, Idaho
Five Model 80-D's
Two Model 6's

Condon Cunningham & Kiewit
Omaha, Nebraska
Three Model 80-D's
One Model 6

S. J. Groves & Son
Minneapolis, Minn.
One Model 6
One Model 80-D

C. C. Conley, Walton, W. Va.
One Model 80-D

Ruth Construction Co., Scotdale, Pa.
One Model 80-D

H. R. Anderson, Mt. Hope, W. Va.
One Model 80-D

Walhonde Coal & Construction Co.
Charleston, W. Va.
One Model 80-D

L. S. Coleman, Inc., St. Albans, W. Va.
Two Model 80-D's

Suber & Company & R. D. Foster, Co.
Whitmire, S. C.
One Model 80-D
Two Model 6's

Bob Webb, Charleston, W. Va.
One Model 80-D

Les Hatfield, Barbersville, W. Va.
One Model 6

T. E. Ritter, Norfolk, Va.
One Model 6

V. L. Allen, Princeton, W. Va.
One Model 25

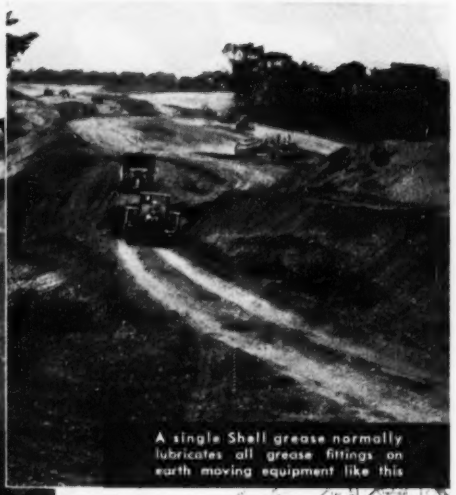
NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

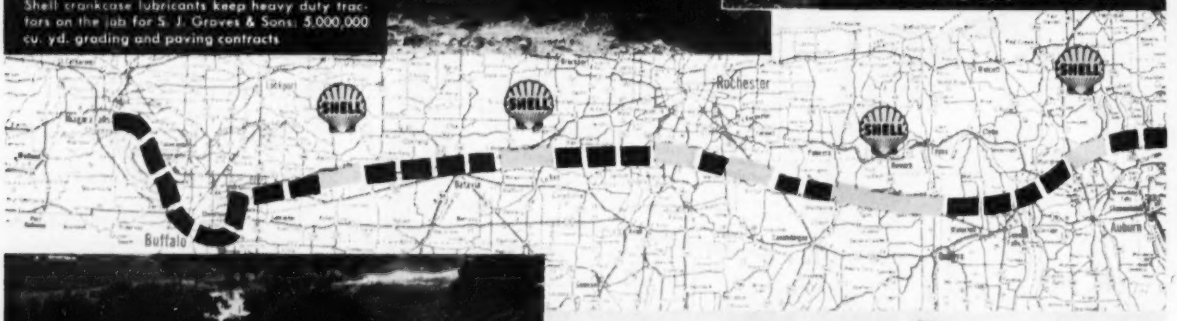
NORTHWEST ENGINEERING COMPANY
1502 Field Building
135 South LaSalle Street, Chicago 3, Illinois

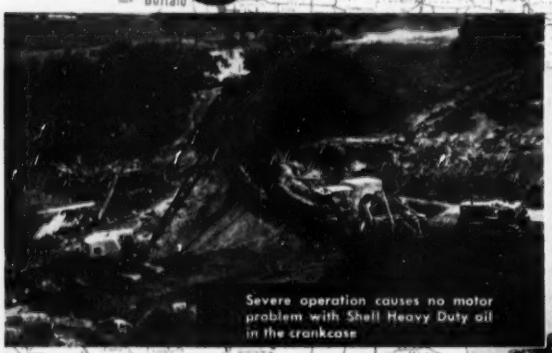
On the New York State Thruway

Shell crankcase lubricants keep heavy duty tractors on the job for S. J. Groves & Sons: 5,000,000 cu. yd. grading and paving contracts



A single Shell grease normally lubricates all grease fittings on earth moving equipment like this





Severe operation causes no motor problem with Shell Heavy Duty oil in the crankcase

Shell E. P. Gear Lubricant takes the punishment during rough going on steep grades

Arute Bros., Inc. depend upon the "stay-put" qualities of Shell's Multi-Purpose Grease for continuous heavy duty work

... 1 out of every 3 construction miles uses SHELL PRODUCTS *exclusively*

That's just one way of saying that Shell has been awarded contracts by companies responsible for building sections of the New York State Thruway totaling over one third of the entire mileage. And the contracts are still coming in!

Trucks, shovels, dozers, graders . . . all equipment run by gasoline or diesel engines on those long stretches of highway construction . . . benefit from the outstanding performance of Shell heavy duty lubricants.

Products that can win the unqualified preference of such responsible and efficient operators must have what it takes . . . and Shell products *have* it . . . plenty!

Most popular on the Thruway, and equally popular wherever heavy duty engines operate, Shell lubricants keep on protecting, defying wear, and keeping maintenance costs at rock bottom. Why not specify Shell for your equipment?

Thruway Map © by General Drafting Co., Inc., Convent Station, N. J.

2½ cu. yd. Shovels thrive on Shell Heavy Duty Lubricants under extremes of load conditions

SHELL OIL COMPANY

50 WEST 50TH STREET, NEW YORK 20, N. Y.
100 BUSH STREET, SAN FRANCISCO 6, CALIF.

SHELL

YOU can stop costly sewage corrosion before it starts, increase the working life of your sewage treating tanks and equipment, and cut maintenance costs to a minimum when you protect with Pitt Chem Tar Base Coatings.

These tough, durable coatings were specifically formulated to protect structures and equipment against mineral acids, alkalis, corrosive vapors and atmospheric conditions. Leading sewage plant engineers acclaim them as the most satisfactory of all types of coatings for combating sewage corrosion.

Pitt Chem Tar Base Coatings are easy to apply and provide a protective coating up to 10 times as thick as ordinary paints. Their black color doesn't fade or discolor—even after years of use. *No other material does such a complete job of protection at so little cost.* ● Write today for recommendations on your specific problems.

W&D-4488

Write For FREE Corrosion Control Booklet

Tells where tar base coatings can save you money in your plant . . . what grades to use . . . how to apply them.

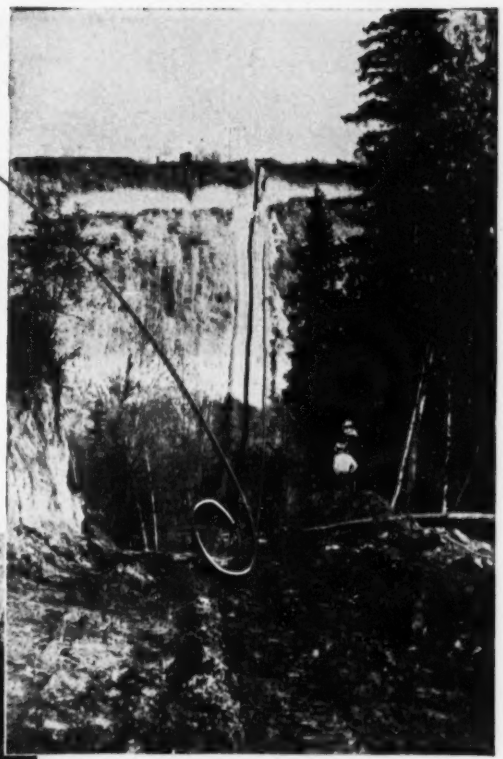
PITTSBURGH COKE & CHEMICAL CO.

Grant Building · Pittsburgh 19, Pa.

COAL CHEMICALS • AGRICULTURAL CHEMICALS • FINE CHEMICALS • PROTECTIVE COATINGS • PLASTICIZERS • ACTIVATED CARBON • COKE • CEMENT • PIG IRON

You dig 'em better with the right combination of

Power and Speed



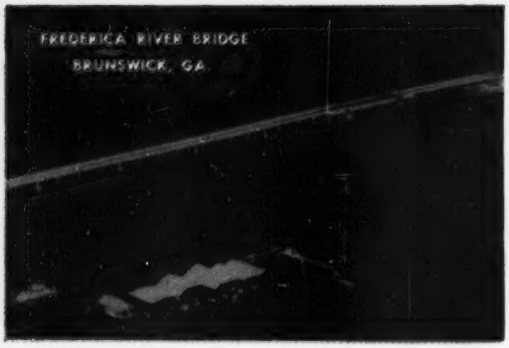
This Operator has at his command over 30 *combinations* of digging wheel and crawler speeds, closely spaced and evenly graduated from 0.4 to over 29 feet per minute. This practical, exclusive Cleveland feature enables him to select exactly the *right* speed and power combination for *every* condition encountered on this tough 8" pipeline job in Alberta—or on *any* trenching job.

This Trencher like all Clevelands, is *built tough* through finer design and tougher materials —*balanced better* through proper weight distribution on wide full crawler mounting. Clevelands dig more trench—longer—with less trouble and at less cost. It's in the records.

Get the full story on CLEVELANDS from your local distributor

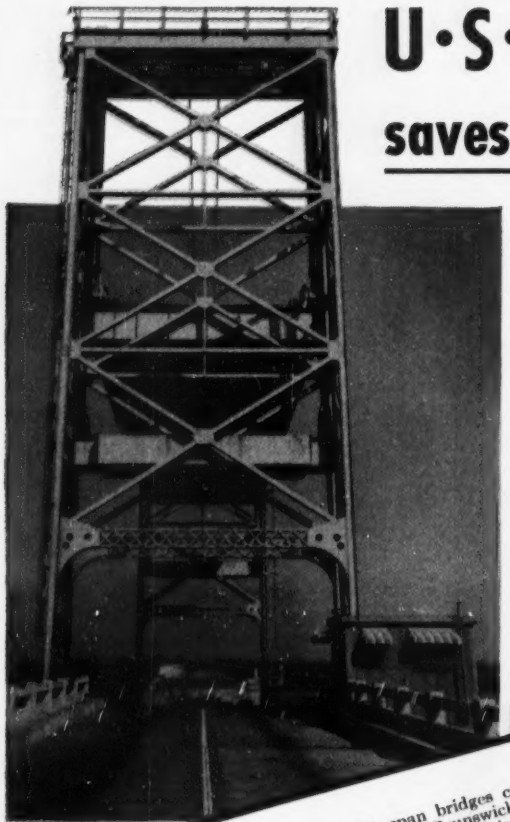
Pioneer of the Modern Trencher

THE CLEVELAND TRENCHER CO. 20100 ST. CLAIR AVE. CLEVELAND 17, OHIO



On these

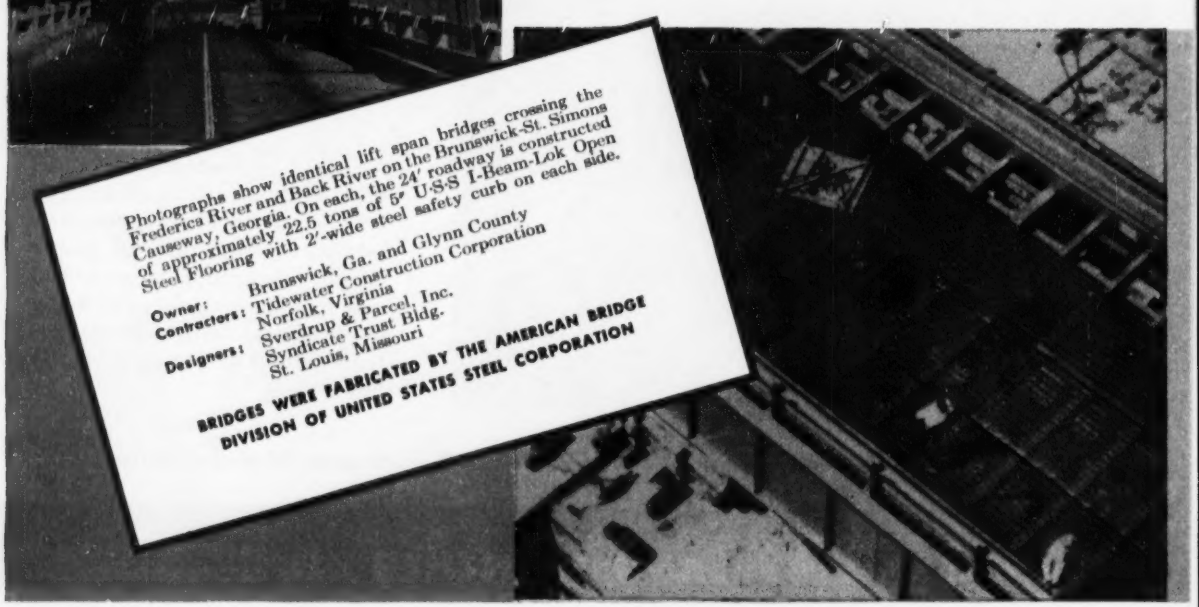
U·S·S I-BEAM-LOK saves approximately 101,000 lbs.



The Frederica River Bridge and the Back River Bridge shown here are part of the Brunswick-St. Simons Causeway in Georgia. They are identical structures. Their lift spans are plate girders with a clear opening for navigation of 100 feet horizontally and 80 feet vertically in the raised position.

These two bridges provide interesting examples of the use of U·S·S I-Beam-Lok Open Steel Flooring to assure substantial economies by saving weight in the flooring.

By using 5" open steel flooring, which weighs 18.8 psf. as against about 60 psf. for a conventional 6½" lightweight concrete slab, it was possible to save more than 50 tons in the weight of the floor on each of the bridges.

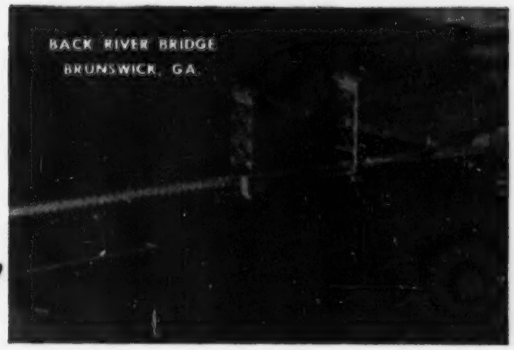


Photographs show identical lift span bridges crossing the Frederica River and Back River on the Brunswick-St. Simons Causeway, Georgia. On each, the 24′ roadway is constructed of approximately 22.5 tons of 5″ U·S·S I-Beam-Lok Open Steel Flooring with 2′-wide steel safety curb on each side.

Owner: Brunswick, Ga. and Glynn County
Contractors: Tidewater Construction Corporation
Norfolk, Virginia
Designers: Sverdrup & Parcel, Inc.
Syndicate Trust Bldg.
St. Louis, Missouri

BRIDGES WERE FABRICATED BY THE AMERICAN BRIDGE DIVISION OF UNITED STATES STEEL CORPORATION

2 bridges..

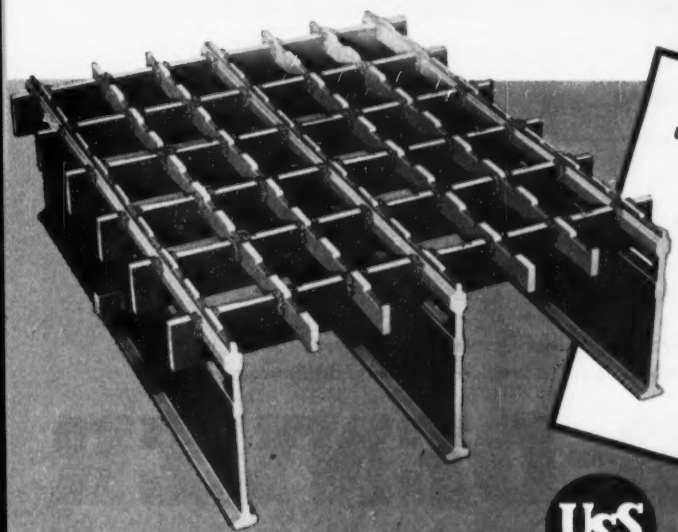


OPEN STEEL FLOORING
deadweight on each long lift span

Its light weight also makes I-Beam-Lok ideally suited for reflooring jobs because in most cases it can be applied directly to existing stringers without requiring secondary supports. I-Beam-Lok can be erected easily and speedily (on reflooring projects, with a minimum interruption of traffic) to produce a smooth riding, skid-resisting, self-cleaning, fireproof and long-wearing surface.

For more information about the time-saving, money-saving advantages of this lightweight steel flooring in bridge construction, contact the sales office nearest you.

UNITED STATES STEEL CORPORATION, PITTSBURGH, PA.
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL EXPORT COMPANY, NEW YORK



U·S·S I-BEAM-LOK OPEN STEEL FLOORING is available in units measuring 6′-2″ in width and up to 49′ in length. This lightweight, all-steel flooring with its strong, full 5″ depth can be applied directly to stringers on spans up to 4′ centers to permit H-20 loadings. It does not require secondary supports. This "modern floor for modern traffic" combines weight saving and reduced costs with roadway rigidity, ease of erection, a smooth, hard, self-cleaning surface and low maintenance costs. It is also available in concrete-filled type.

USS

UNITED STATES STEEL

GARDNER-DENVER CONGRATULATES

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

on the speedy progress in the construction of the Sir Adam Beck Generator Station at Niagara Falls, Ontario, and the men of Rayner-Atlas Construction, Ltd., on their choice of methods and equipment which make this record advance possible.

TEAMWORK PAYS OFF!

SCORE BOARD FOR THE WEEK OF JUNE 19 - JUNE 26 RAYNER - ATLAS SHAFT NO. 2

	N. Heading	S. Heading	Total
Total Advance of Headings	276'	292'	568'
Number of Rounds Blasted	16	17	33
Advance per Round	17.2'	17.2'	17.2' Av.
Number of Shifts	21	21	42
Advance per Shift	13.1'	13.9'	13.5' Av.
Cu. Yds. Excavated per Week	12,972	13,724	26,696
Drills	22 G.D. Model D93	22 G.D. Model D93	44 G.D. Model D93

Only Gardner-Denver Drills were used in the world's record week and not one drill missed a shift!

SINCE 1859

GARDNER-DENVER

Gardner-Denver Company (Canada) Ltd., 14 Curity Ave., Toronto 13, Ontario

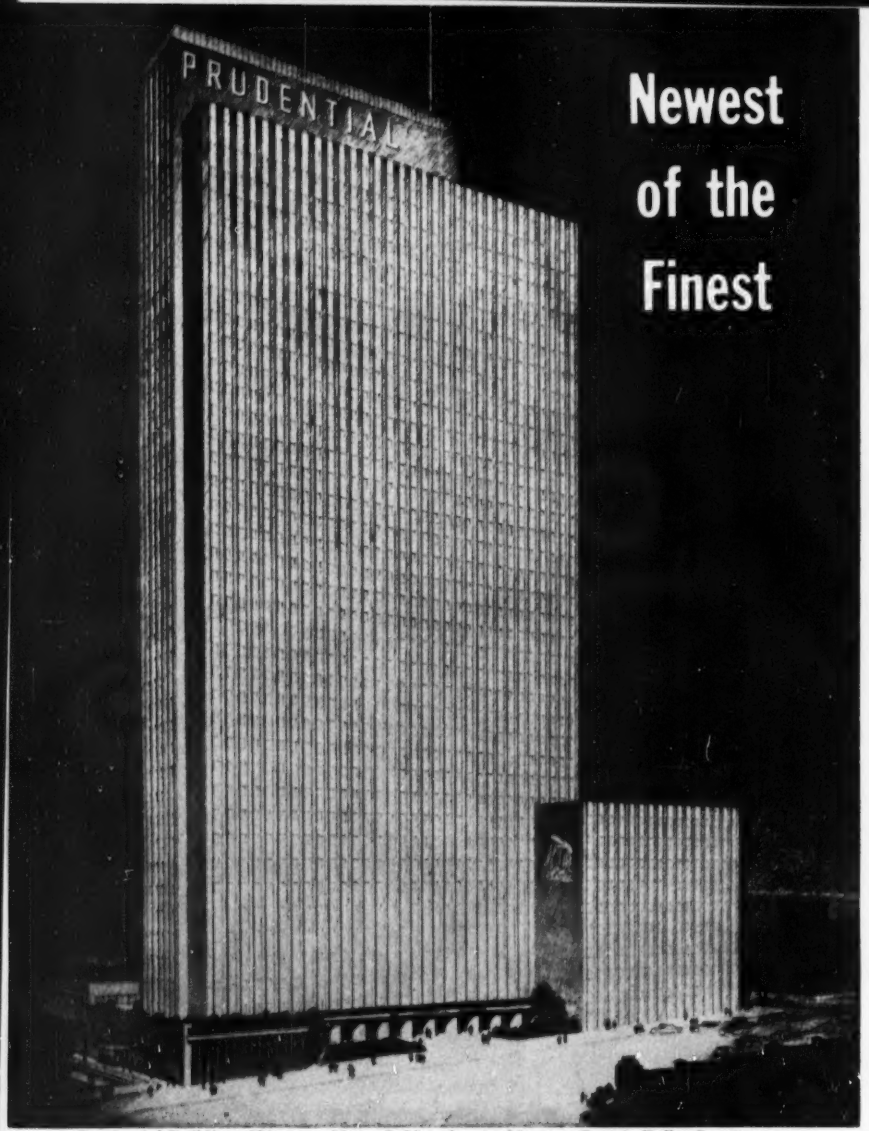
THE QUALITY LEADER IN PUMPS, COMPRESSORS AND ROCK DRILLS
FOR CONSTRUCTION, MINING, PETROLEUM AND GENERAL INDUSTRY

eager?

The smart businessman is always an eager beaver when it comes to new methods and new products. How about you, sir? Are you familiar with all the outstanding oils and greases in the complete line of Cities Service Industrial Lubricants? For the full story, why not talk to a Cities Service Lubrication Engineer? Write Cities Service Oil Company, Dept. K 9, Sixty Wall Tower, New York City 5, New York.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS



Newest of the Finest

Prudential Building, Chicago • Naess & Murphy, Architects • Geo. A. Fuller Co., Contractors

The new Prudential Building will soon rise 600 feet above the shore of Lake Michigan, and become a distinguished addition to Chicago's skyline. This mid-America headquarters of the Prudential Insurance Company will contain more space than any other office building in America's second largest city.

As a building, it will take its place among our country's finest structures and is a perfect example of the features a well-informed investor is willing to put into the space he plans to use and rent. For instance, to prevent future obsolescence and to meet the increasing requirements of modern electronic office equipment, architects Naess & Murphy have prepared the new Prudential Building to handle the highest electrical load of any office building yet built. To do this job easily, and to permit layout changes and additions at minimum cost, Robertson Q-Floor construction is being used. This strong, light-weight, steel, cellular structural floor is the only construction material available which provides easy electrical access over every 6-inch area of the entire exposed floor. For more good reasons why fine new buildings all over America have turned to Robertson Q-Floor construction, write for literature.

Robertson

Q-Floor

a product of **H. H. Robertson Company**

2420 Farmers Bank Building • Pittsburgh 22, Pa.

Offices in All Principal Cities **World-Wide Building Service**

READER COMMENT

Piles used economically?

SIR: Many million feet of rock-bearing steel piles have been driven in the United States and yet there is no published record of tests having been made to establish their ultimate bearing capacity.

In other words there are no data available on their behavior as columns laterally supported by the various soils when these piles are driven to rock and loaded to the point of failure.

For all other forms of steel used in construction there are available data on their ultimate strength, but not for the steel pile.

Load tests of from 50 to 100% in excess of the designed loads of piles in a foundation are often required by the specifications and these conditions are met without difficulty, but, to repeat, the ultimate load that the pile can support still remain an unknown quantity.

Building codes in many cities contain formulas to determine the load permitted on these piles, but the factor of safety is unknown. Engineers have found that certain loadings are safe, and because no failures of this type of foundation have ever been reported there has been general acceptance of these formulas.

In recent years a Swedish engineer has obtained remarkable results from tests on 2-in. and 3-in. steel pipe driven 130 ft through a uniform clay to rock. These pipes were loaded to the yield point of the steel without appreciable settlement.

Another Swedish engineer arrested the movement of a factory building weighing 650 tons by means of 1¼-in. round steel reinforcing rods butt-welded in 20-ft sections and jacked down to rock 130 to 156 ft below the structure. Eighty-four rods were loaded to 8 tons each with entirely satisfactory results. The material penetrated was a uniform sedimentary clay containing no gravel or boulders. One rod without lateral support would not have sustained its own weight in lengths of 75 or 100 ft and yet with the lateral support of medium clay it supported 8 tons. The lateral support of the clay as indicated by these two Swedish tests is a remarkable phenomenon.

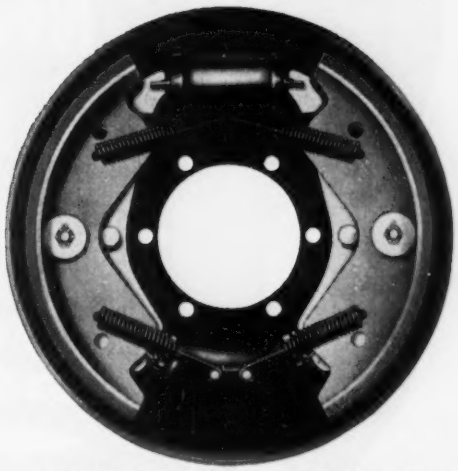
The Swedish engineer who designed the foundation with long reinforcing bars took full advantage of the soil characteristics. It is quite possible that ultimate load tests on 6-in. and 4-in. dia steel piles would demonstrate that smaller pile sections could be used safely on certain structures, effecting

these

TDA

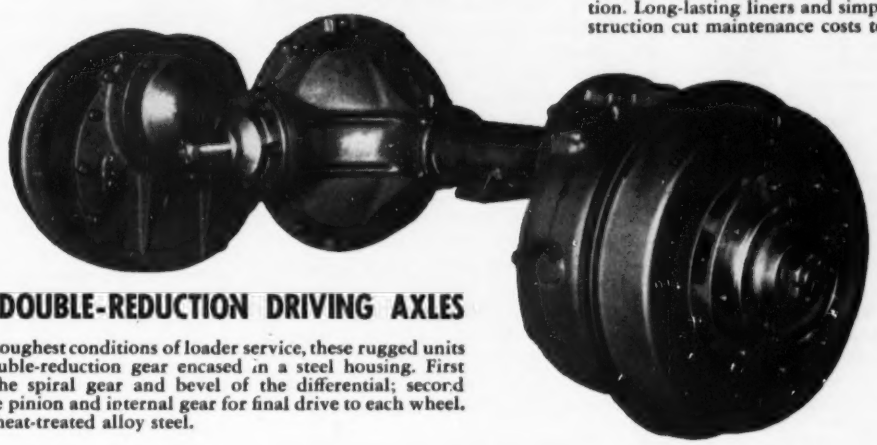
COMPONENTS

keep front loader costs down!



SIMPLE, RUGGED BRAKES IN A COMPLETE RANGE OF SIZES

From TDA's complete line of brakes you can find one that's specifically engineered for your type of vehicle. These dependable brakes can be either hydraulically, manually or air actuated. They are designed for smooth, positive operation. Long-lasting liners and simple, sound construction cut maintenance costs to a minimum.



POWERFUL DOUBLE-REDUCTION DRIVING AXLES

Designed for the toughest conditions of loader service, these rugged units incorporate a double-reduction gear encased in a steel housing. First reduction is in the spiral gear and bevel of the differential; second reduction is in the pinion and internal gear for final drive to each wheel. All shafts are of heat-treated alloy steel.

MANUFACTURERS SAVE on production and design costs by equipping their front loaders with TDA components. In most cases, units like the ones shown on this page can be easily adapted to any type of front loader. Or, if this is not practical, you can often save money by making full use of TDA's research and engineering experience and widespread manufacturing facilities. We welcome the opportunity to work hand in hand with you in solving your particular problems.

USERS SAVE on maintenance and operating costs when they buy TDA-equipped front loaders. For instance, the modern driving axle shown here is built to provide more than enough power and traction to dig the toughest type of material—yet hold upkeep costs at an absolute minimum. You'll find it pays to insist that your new front loaders are TDA-equipped!

The Standard

Timken-Detroit Axle Division
ROCKWELL SPRING AND AXLE COMPANY
Detroit 32, Michigan

WORLD'S LARGEST MANUFACTURER OF AXLES FOR TRUCKS, BUSES AND TRAILERS

PLANTS AT: Detroit, Mich. • Oshkosh, Wis. • Utica, N. Y. • Ashtabula, Kenton and Newark, Ohio • New Castle, Pa.

Look to the Leader FOR EQUIPMENT THAT CARRIES MOVES AND STOPS THE LOAD

New Way to Reduce Sling Costs 22.3%

Notice how Pin-Lock Thimbles are held securely in position by steel pins. These pins make it easy to transfer Pin-Lock Thimbles to replacement Red-Strand Slings.

Save by reusing Pin-Lock Thimbles on Red-Strand Braided Slings

Now . . . *stop* discarding still-good sling thimbles! With Red-Strand Braided Slings, you simply transfer *reusable* Pin-Lock Thimbles from one sling to another. *Cut costs substantially.*

Savings of 22.3% are typical. See chart at left for other examples.

Pin-Lock Thimbles also guard against unexpected damage to sling loops. They're made of extra heavy, extra durable cast steel.

You save still more because Red-Strand Slings are made of higher-than-rated quality Leschen wire rope—famous for longer-than-expected service.

Doesn't this suggest checking Red-Strand Slings *right now?*

See your LESCHEN representative or write for folder, "NEW IDEAS in Slings."

HERE'S HOW MUCH YOU SAVE WITH Red-Strand SLINGS AND Pin-Lock THIMBLES	
Sling Size	% Savings
9/16" x 10'	33.0%
1/2" x 10'	23.6%
1/2" x 20'	17.2%
3/8" x 8'	22.3%
1/4" x 5'	15.5%
3/16" x 8'	13.0%
3/32" x 10'	8.5%

LESCHEN

LESCHEN WIRE ROPE DIVISION • ST. LOUIS 12, MISSOURI
The Watson-Stillman Company
(A SUBSIDIARY OF H. K. PORTER COMPANY, INC.)

READER COMMENT

significant economies in foundation design.

In this country the resistance to lateral movement of a pile has been demonstrated for many years by the successful use of the steel pipe pile in deep foundations. The standard sleeve is only 6 in. or 8 in. long and tapered to produce a driving fit, yet failures of this type of foundation have yet to be reported. This can be understood readily when consideration is given to the fact that in a soil with a moderate bearing capacity of 2 tons psf, and assuming the lateral resistance to movement to be the same, a 12-in. 50-ft pile would be restrained from horizontal movement by a potential resistance of 100 tons. On a 4-ton soil it would be 200 tons.

The H-beam pile comes under a different category than the pipe pile, since no sleeve is used at the pile joint. The two superimposed pile sections are welded to form a joint and the integrity of this weld is depended upon to prevent possible telescoping of the two pile sections.

Specifications for these welded joints vary in their requirements from a 50% to a 100% splice. The 50% splice consists of a butt weld on the web and flanges of the two superimposed H-beams and is comparatively inexpensive. The 100% splice consists of a similar butt weld supplemented by from 4 to 6 steel plates, the outer edges of which are welded to the web and flanges of the H-beam. The cost of this splice is several times that of the 50% splice. Many specifications require 100% splices on all piles in a foundation irrespective of the soil conditions shown by the borings. It does not seem economical to penalize an entire foundation with the additional cost of expensive splices when obstructions are not indicated. The specification can cover this contingency if obstructions are encountered during the driving process.

When the resistance of the soil to the lateral movement of piles is more fully realized, and when the ultimate bearing value of H-beam piles has been more fully explored, there can be effected many foundation design economies that data now available do not seem to justify.

FRANCIS L. PRUYN, *President*
Underpinning & Foundation Co., Inc.
New York, N. Y.

CALENDAR

American Institute of Steel Construction, annual convention, Boca Raton Hotel, Boca Raton, Fla., Nov. 30-Dec. 4.

National Conference on Highway Financing, U. S. Chamber of Commerce, Shoreham Hotel, Washington, D. C., Dec. 10-11.

Standard 6" x 8" Beam Type 14" x 4", and I Head-14" x 4" available

ACROW

ADJUSTABLE STEEL SHORES

Fast 1,2,3, and they're up...

The flexibility of ACROW's flat-type head lends itself to any size stringer—no redesigning of form-work necessary to fit shore heads, as is required with head types of limited adaptability.

- One Man Does the Work of 2
- Micro-fine, Positive Adjustment Working Ranges From 3'4"—15'
- Safe Working Load Fully Established and Guaranteed
- No Extra Attachments Required for Operation—Self Contained Unit
- Practically Indestructible—All Steel

ACROW—*The World's Largest Selling Shore—Over 1,000,000 Now in Use*

UNITED STATES OFFICES

Chicago, Michigan 2-1010 — Houston, Underwood 8514
New York, LExington 2-7595 — Dallas, Riverside 6081
Boston, DEvonshire 8-7174 — Birmingham, 7-6581
Philadelphia, LOcust 7-5553 — Los Angeles, DAvenport 6-14[illegible]
Atlanta, Emerson 2716 — San Francisco, ATwater 2-144[illegible]

ACROW, INC., Dept. EN-11C
510 North Dearborn Street, Chicago 10, Ill.
Gentlemen: Please send me the following bulletins (Please Check)

☐ Acrow Shores ☐ Column Clamps ☐ Trench Jacks

Name .....
Company .....
Address .....
City ..... Zone ... State .....

ASSOCIATE COMPANIES

Acrow (Canada) Ltd., Montreal
Acrow Venezuela S. A., Caracas
Acrow Brasil S. A., Rio de Janeiro
Acrow Uruguay S. A., Montevideo
Acrow Argentina S. A., Buenos Aires
Acrow Peru S. A. (Ingenieros), Lima
Acrow (Engrs.) Ltd., London
Acrow Engrs. (Pty.) Ltd., Johannesburg
Acrow Engrs. (Pty.) Ltd., Sydney

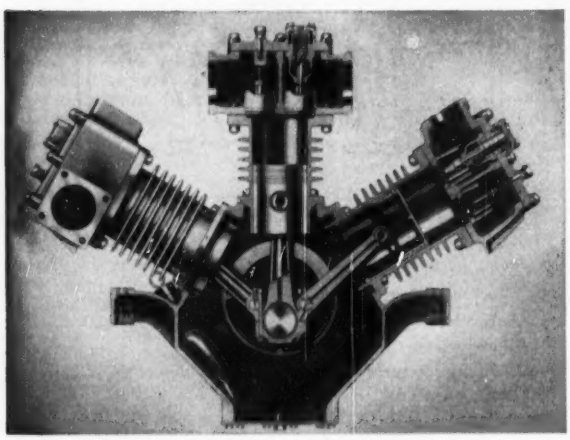
If you believe

ALL COMPRESSORS ARE ALIKE...

600	134	202	68	33.7
315	75	117	42	35.6
210	51	78.5	27.5	35
160	37	57	20	35
105	25	42.5	17.5	41.6

check these three points

1. RESERVE POWER. There's plenty of that built into every Blue Brute. That means it takes thousands of hours of normal operation before engine wear affects the compressor's output.



2. EASY MAINTENANCE. All parts of the Blue Brutes are readily accessible. No special tools or complicated disassembly procedures are needed. And the compressor uses the same oil as the engine.

60'	GASOLINE	1.31	1.42
105'	GASOLINE	2.16	2.35
	DIESEL	1.66	1.73
160'	GASOLINE	3.18	3.44
	DIESEL	2.45	2.60
210'	GASOLINE	4.32	4.70
	DIESEL	2.89	3.06
315'	GASOLINE	6.25	6.75
	DIESEL	4.38	4.64
600'	DIESEL	6.30	9.20

3. FUEL ECONOMY. How does your compressor stack up in comparison with the Blue Brute for economical fuel consumption? The figures shown have been determined under normal field operating conditions.

Get all the facts about the Blue Brute from your nearest Worthington distributor. Or write to Worthington Corporation, Construction Equipment Division, Section H.3.6, Plainfield, New Jersey.

WORTHINGTON

H.3.6

IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB

ROCK DRILLS • WAGON DRILLS • PAVERS • CONCRETE MIXERS • PORTABLE PUMPS

IN THIS ISSUE

November 19, 1953 Vol. 151, No. 21

NATIONAL AFFAIRS

Paducah: Labor lesson for an industry 21
Florida turnpike body suspended by governor over duplicate surveys 24
Highway officials call construction funds most pressing problem for nation's roads 25
Defects found in building that failed 26
Double trouble delays 1-ft slab job 26
Shoring frame aids bridge underpinning 28
Raritan River cleanup plans move forward 28
Arkansas road probe ends 28
94-ft concrete roof beams set record for prestressed members cast in place 29

MEETINGS

Building research group discusses porcelain enamel .. 30
APHA annual session held in New York 30

FEATURES

How will federal hydro policy affect Pacific Northwest? 33
This is the Portsmouth area 40
River intake for industrial water supply to tap flood flows only 45
Earthquake-resistant tower features floating foundation, heat-pump 47

MUNICIPAL

Shop-built traveling form speeds sewer job 50

INTERNATIONAL

Light weight, few forms permit fast erection of concrete structures 61
Experts report on prestress fire resistance 63
Hungary pushes multi-purpose dam 64
Open-cut tunnel: Novel method to go under canal .. 67

FIELD AND OFFICE

Berm shaper designed for canal work 75
Air-driven axe cuts pile-pointing time 75

EDUCATION

National Science Foundation to present 700 fellowships 82
Variety of construction curricula at University of Michigan 82
Open new classes for building department heads .. 86
Four-year housing courses introduced at two schools 86

BUSINESS AND FINANCE

Regional pattern of awards shows wide ranges in volume 142
ODM's new rules probably won't help construction in distressed areas 143
Levitt himself to build schools for his town 143
Price cutting declines on highway bids 144

NEW PRODUCTS

Big one for the Air Force: First of its large floating cranes completes performance trials 156
Lift makes trucks self-loading 160
Large holes in concrete no problem for this mole .. 162

Reader Comment 12
Calendar 14
Washington Observer .. 19
Obituaries 91
Books 94
Construction Reports .. 96
Unit Prices 133
Editorial 167-168

THE CONSTRUCTION WEEK

- **Down but still good**—Housing starts are continuing their slow decline—but the U. S. Department of Labor's statisticians think they're still going to rack up a total of about 1,100,000 by year's end. The department reported that starts for October were 88,000—slightly less than September, and considerably under the 101,000 started in October a year ago.

- **Right reason**—A lot of people have been looking for other reasons—but the experts agree that the Atomic Energy Commission gave the real reason for its order halting work on its Spoon River explosives processing plant near Macomb, Ill.:

  Production from the plant won't be needed according to present estimates.

  The experts say you can trace that back to the really amazing improvements in efficiency at Savannah River and other existing AEC plants—which are producing a lot more material than AEC or anyone else thought possible.

  Result, Spoon River is out, at a net saving to AEC of $26 million.

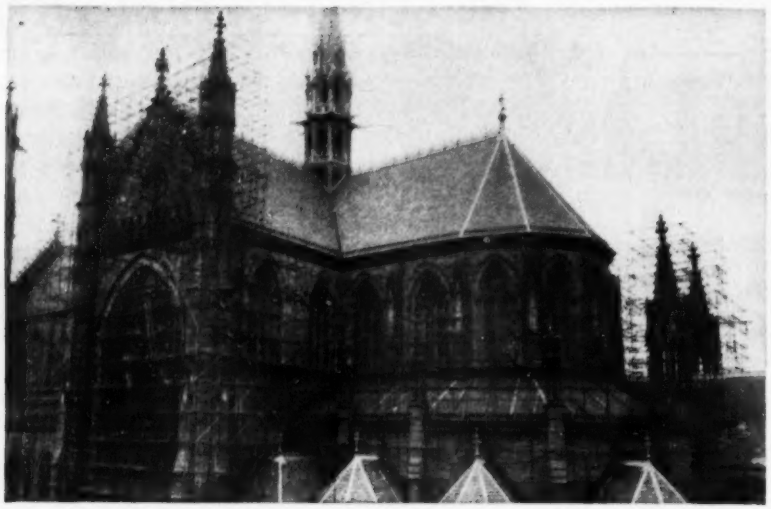
- **New basin study?**—Washington is seriously considering a new study of Columbia Basin resources—despite any previous reports made on the area. Oddly, the consideration for the Columbia grew out of announced intention to study the resource development of the Tennessee Valley. Washington State's Representative Horan immediately weighed in with a request for a study in his home territory.

- **"Manpower" source?**—Since engineering manpower is admittedly short, the nation should look to another "power" source—women. That's the dictum of Arthur S. Flemming, Mobilization Director, who is urging more women to enroll in engineering schools, and more schools to expand their recruiting program to include feminine students.

  It's true reasoned Flemming, that young women might work a while, then quit to marry and raise families. "But later in life they'd be again available," he added, "and in an emergency, they could be called on to help."

- **Composting try?**—Watch Oakland, Calif., next year for what may be the country's first successful commercial venture into composting.

  Richard Stovroff, youthful president of Compost Corp. of America, has put money into the 70-ton-per-day installation at Oakland (ENR Oct. 16, 1952, p. 37) and is banking on a decision by Buffalo consultant, J. Frutchbaum, to put him into business with a 265-ton daily operation. Stovroff's expectations on income from composting have met with skepticism from ASCE and APWA audiences lately—but his knowledge of salvage and recent experience with composting shouldn't be underestimated.



NETWORK OF STEEL scaffolding surrounds Cathedral of the Sacred Heart, Newark, N. J., providing safe footing for workmen who are repointing the entire stone exterior. More than 67 miles of PS Co. Scaffold was erected. Contractor is George A. Fuller Company.

353,760 feet of Scaffold Helps Complete Cathedral

ONE OF THE LARGEST and most complicated scaffolding installations ever erected in the East employs 353,760 ft of TubeLox (R) Scaffolding and 1,200 "Trouble Saver" (R) Sectional Steel Scaffolding frames to support stonemasons and materials involved in completing the unfinished Cathedral of the Sacred Heart, Newark, N. J.

The "shell" of the Cathedral was constructed 50 years ago, then left unfinished. Stonework had deteriorated during the interval. Chesebro-Whitman Company, Inc., supplied and erected the PS Co. Scaffolding for all inside installations and for enclosing the entire exterior, including the towering 200 ft spires. A 100 ft "Gold Medal (R)" Steel Hoist Tower was erected inside the Cathedral for raising materials to the walls and vaulted nave.

Inside the 277x140 ft Cathedral, Prof. Gonippo Raggi & Sons, Orange, N. J., employed 90 ft "Trouble Saver" Rolling Scaffolds to reach high window areas for specialized stained glass work. When these scaffolds were removed, sturdy TubeLox Scaffolding was installed to support the 86 ft high stone arches, located over the nave, crossing and transepts. These three areas were covered with scaffold laid out to support loads of 1000 lbs per lineal foot. Indiana limestone was used throughout for walls, columns and arches. The main scaffold was used for centering of arches and as a storage deck for the stonework, which weighed 162 lbs per cu ft.

All PS Co. Scaffolding provided separate level platforms, which placed materials and men—directed by construction superintendent James Taylor and the stone setting contractor Robert L. MacLean—at the levels required by each job. Only PS has the *right* scaffolding for every job, big or small. That's why, for the best equipment for any job, you should do as thousands of contractors and sub-contractors do—*when it comes to scaffolding, come to PS.*

1½-TON KEYSTONE of Indiana limestone is readied for lifting on the "Gold Medal" Hoist Tower. It will be raised 95 ft and installed in a nave arch.

86 FT ABOVE THE FLOOR, stonemasons stand on TubeLox Scaffolding as they guide keystone being lifted last few feet prior to being set. Scaffolds were also built to the same height in nave and transepts.

SAFE FOOTING for these workmen—viewed through a 36 ft clere arch—is provided by "Trouble Saver" Sectional Steel Scaffolding. They are covering a 34 ft aisle arch with Gustavino tile.

PS offers you a complete nation-wide engineering service—available locally. To buy or rent PS Scaffolding, see the Yellow Pages in your 'phone book for the nearest "Gold Medal" office or representative.

FOR GREATER SAFETY...EFFICIENCY...ECONOMY

GOLD MEDAL LADDERS SCAFFOLDING

THE PATENT SCAFFOLDING CO., INC.

38-21 Twelfth St., Long Island City 1, N. Y., Dept. ENR • 6931 Stanford Ave., Los Angeles 1, Calif.
Branches in all principal cities

WASHINGTON OBSERVER

Boost for present program of federal aid to highway building was given to Public Roads Commissioner Francis V. du Pont last week by the powerful American Association of State Highway Officials (see p. 25). This strengthens du Pont's hand in the behind-the-scenes tussle with Commerce Undersecretary Robert B. Murray, Jr., who would cut back or eliminate federal funds for state highways.

Secretary Weeks must eventually decide which way to go. So far, there's no clear indication of which way he is leaning, but odds around Washington are that he will back the present program.

•

Getting the federal government out of the power business will be the main job of the Hoover task force on power, the public power men say. They point out that not one supporter of public power can be found among the 25 members. With unanimous sentiment for ending federal activities—including future dam-building—the report can stick to the problem of how to go about divesting Interior and other agencies of their power properties.

California officials are renewing talks with Interior on the possibilities of taking over the federally financed Central Valley project.

•

Senate leaders are ready to push a St. Lawrence Seaway bill just as soon as Congress gets back to work. Figuring is that, in general, the Republicans need a fast start this session if they're going to make a legislative record that will look good to the voters come next November.

However, there's talk about holding up on the seaway debate until the court case against the New York license to build the power part of the project is settled. Idea is take one bite at a time.

A court decision upholding New York's license to build the power plants—which most observers expect—would give the seaway legislation an added push. Motion to expedite the court case was argued this week in Washington.

•

New Air and Navy bases to be built in Greece and Turkey now seem certain. By the first of the year look for the military's joint construction agency now supervising NATO work in France to get the assignment to let the engineering and construction contracts. The job will run into millions of dollars, but it's not yet sure whether a U. S. contractor team will be brought in to manage the actual work, as is being done in Spain.

•

Bureau of Standards has won completely in the battery additive ruckus. Committee of scientists looked into bureau's testing of Jess Ritchie's battery rejuvenator AD-X2 and reported last week (1) the bureau's testing was scientifically conducted, (2) AD-X2 is "without merit", and (3) additional tests are not needed.

Bureau chief Astin and his men earlier got approval from another committee of scientists who reviewed bureau's general operations, staff, and scientific procedures.

•

Another round of tax aid to electric power expansion may be forthcoming. For the last couple of months, Office of Defense Mobilization has been turning down applications for rapid amortization on new generating plants on the ground that the industry has reached the capacity goals set up by ODM during the post-Korea expansion boom. ODM officials now talk about the possible need for more than the 117-million kilowatts installed capacity, which they have now as a goal to be reached by 1956.

Stang VERSATILITY DEMONSTRATED

BY A NOVEL APPLICATION OF WELLPOINT DEWATERING

Equipment being recovered, after having been buried over a year.

IN the spring floods of the mid-west, valuable construction equipment was buried under many feet of sand and muck.

A valuable item of such equipment was this lost beneath 10 ft. of flood-deposited material.

Repeated salvage efforts by ordinary methods being of no avail . . . .

A STANG Wellpoint System was installed surrounding the buried equipment; the quicksand was dewatered; and the excavation and recovery accomplished in jig time.

The contractor was happy to report the equipment still in excellent condition.

Whenever and wherever your problem is CONTROL of GROUND WATER call STANG at

JOHN W. STANG CORPORATION

Engineers & Manufacturers of Dewatering Equipment

Omaha, Nebraska
2123 South 56th St.
Tel. Walnut 7796

Bell, California
8221 Atlantic Ave.
P. O. Box 631
Tel. Logan 5-7421

Tacoma, Washington
2339 Lincoln Ave.
Tel. Broadway 4362

New York, N. Y.
No. 2 Broadway
Tel. Whitehall 3-0565

Photo by Paducah Sun-Democrat

Paducah: Labor lesson for an industry

George T. Orick
Assistant Editor

The attention of the construction industry has been drawn during the last three years to the seemingly endless labor turmoil attending the creation of an atomic energy works near Paducah, Ky., and a satellite power plant at Joppa, Ill., being built by a group of private utilities. Involved also but to lesser degree is another satellite power plant at Shawnee, Ky., being built by Tennessee Valley Authority.

What are the causes—and more important—what is the meaning of a situation that can throw a roadblock in the path of such a vital facility as atomic energy production? If it can happen on a defense job of such urgency it could happen anywhere. Given the same conditions it could bankrupt contractors working for any lesser owner than the United States government. The answers to the question therefore assume paramount importance for the entire construction industry.

With this thought in mind ENGINEERING NEWS-RECORD has attempted an on-the-scene analysis of this three-job area to squeeze out the facts that are important and the faults that are significant to the future avoidance of such crippling labor strife. The faults—as will be clear from the facts reported below—are distributed among all elements involved—owner, contractor and labor. The facts are those that could apply anywhere if the faults are repeated.

The background of the Paducah area situation seems to be that during the past three years three major developments have occurred, any one of which is big enough to provide dangerously disruptive pressures.

Here they are:

- A century of big-scale labor and industrial development has been compressed into three years.
- Western Kentucky—and southern Illinois, across the Ohio River—has become a testing area for recently evolved AFL policy of replacing local autonomy in building trades with international supervision and, where necessary, control.
- Private utilities and public power (TVA) have been competing for national favor in a race to supply electric power to the Atomic Energy Commission's big Paducah plant.

• Slow growth—In deciding to build its plant in the Paducah region, the Atomic Energy Commisison was taking advantage (among other things) of what it calls a "surplus labor area."

Paducah and its surrounding countryside has a history of sporadic, small-scale, industrial growth superimposed on an agricultural background. Toward the end of the last century the building, repair and manning of Ohio River boats occupied many Paducans. And from 1896 until 1950 the Illinois Central Railroad came to be the biggest steady employer. There grew, too, the usual assortment of small, area-owned factories.

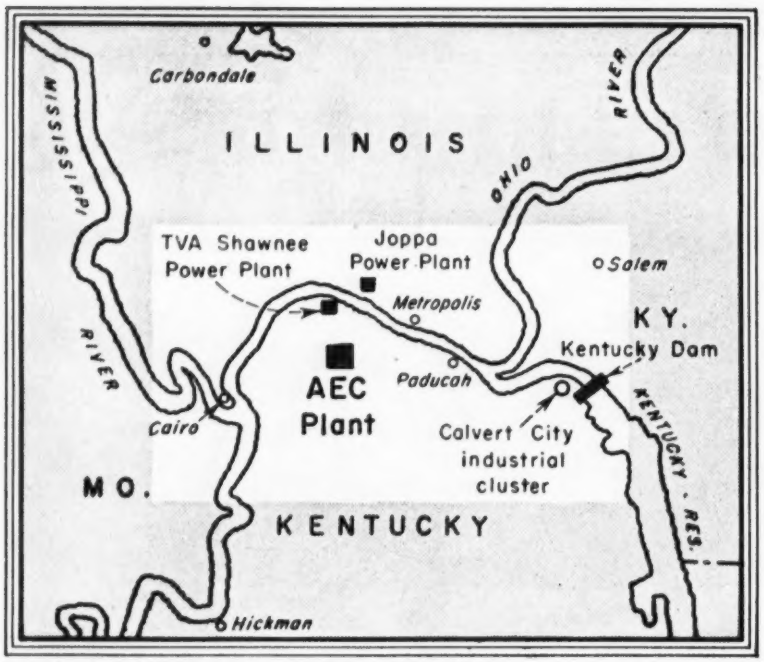
During the depression of the '30s, growing of strawberries and dark-fired tobacco, agricultural mainstays, fell off. A construction labor force grew in the '30s and '40s to handle publicly-financed projects—a floodwall along the Ohio, Tennessee Valley Authority's Kentucky Dam and the Kentucky Ordnance Works. After a postwar slump, industry started building plants —on a modest scale—at Calvert City to use low-cost TVA power from Kentucky Dam.

And so, AEC came to Paducah to build a plant, expecting to find a nucleus of an experienced, union-wise construction force that could be supplemented by farmers who were looking for a better—or additional—way to make a living.

• Analysis—Looking back over Paducah's three-year century, officials of the Atomic Energy Commission of its prime contractor at Paducah, F. H. McGraw Const. Co., and of local construction unions are in pretty close agreement on where they made mistakes.

Across the Ohio River, at Joppa, Ill.—where first Ebasco Services Inc., and now Bechtel Corp., have taken a crack at building a big thermal plant to supply half the power needs of the AEC's installation—client, contractors and labor seem not so sure what went wrong.

To analyze the upheaval, it is nec-



. . . Paducah: Labor lesson for an industry

essary to pull out big chunks of trouble from the general mass, hold them up for a detailed inspection and then look at how they fit into the area picture.

For example, there are four major buyers of construction—and of labor—in western Kentucky and southern Illinois: the Atomic Energy Commission, Tennessee Valley Authority, Electric Energy, Inc., (the private utility group in the picture) and a cluster of non-local industries that are building factories near Paducah.

Their case histories are worth individual study:

• **Colossus**—Everyone is pretty well aware of the troubles F. H. McGraw Co. had during its first year and a half as prime contractor for the AEC's billion-dollar Paducah gaseous diffusion plant. There were sixty or seventy strikes (depending on who counts them) many attributable to jurisdictional disputes.

Of course, membership in locals of building trades unions ballooned, as the huge project was manned: Some locals increased to ten times their pre-AEC size. There is little doubt that many strikes resulted from tensions between the locals' small voting memberships and huge non-voting groups of "permit" craftsmen who flooded trailer parks in the area.

Unionism wasn't new to the migrants; nor was it to the local workers. But the local men simply didn't have big-project experience, and as they fought to keep control of their locals, it was inevitable that their education be painful.

Contractor and client were educated too.

AEC people will tell you privately that they erred in not urging F. H. McGraw to take the lead, as the area's biggest employer, in bargaining with labor. They have said—and there is agreement by McGraw officials, subcontractors and business agents of Paducah union locals—that a project agreement should have been worked out first thing, instead of within the past few months. There's little need for one now; employment is on the downgrade, and most locals are disinclined to argue in the face of a shrinking labor market.

• **Peace formula**—About a year ago labor peace came to Paducah. True, there have been some strikes at the AEC project since then, but the tension between labor and contractor has dissolved into cooperation.

Here's why: After employing a series of labor relations experts who, together with the Atomic Energy Labor Relations Panel, had wrestled, without tangible results, with the labor force, F. H. McGraw turned over more and more responsibility for dealing with unions to McKinley Ralston, industrial relations director.

Ralston, who had been with McGraw since the start of the job, is from the hills of eastern Kentucky, and for over a decade has been well-known to labor in the area as a general organizer for the AFL.

As Ralston talks out a labor problem with a local business agent, there is an undertone of kinship and sympathy which makes the conclusion difficult to escape that Kentucky labor reacts partly to today's reality and partly to little twinges of a sort of clan memory of the years when outsiders did not overrun their land.

What's more, at about the same time Ralston emerged as McGraw's secret medicine, both contractor and labor seemed to be getting over their awe at the size and complexity of the task and started applying some of the lessons they had learned in fighting one another and among themselves.

ENR staff photo

NO SHAKEDOWN made at Joppa, says Evan Dale, Illinois-type labor boss.

ENR staff photo

"FRATERNALSHIP is the basis of unionism," says Bill Sanders, Kentuckian.

McGraw is in the clear now. The plant is on schedule and the AEC seems happy—judging from the alacrity with which AEC turned aside a demand for a probe of McGraw's work by a congressman acting for some of McGraw's subcontractors. Some of the subs—working on a lump-sum basis—feel they've been squeezed by wage boosts they didn't expect.

• **Joppa**—The Ohio River is more than a boundary between Illinois and Kentucky. It's an ideological divider between two paths of labor development.

Joppa, Ill., where a five-company private utility combine is trying to build a plant to supply half the electricity needs of the AEC works, has seen almost no peace. Shawnee, Ky.—where TVA is building a somewhat similar plant—has had a happier history.

The construction world was brought up short last summer when Ebasco Services—an experienced engineer-contractor with an excellent reputation as a designer and builder of power plants—was removed from the Joppa job.

Labor troubles and rising costs were given as reasons for the removal by client Electric Energy, Inc. More than that no one would say.

• **Shawnee**—The troubles at Joppa—publicly at least—have overshadowed what's been happening at Shawnee. EEI, which admits it's mightily embarrassed by the notoriety its big experiment has achieved, can take some comfort in the fact that TVA has had more labor troubles at Shawnee than at other TVA jobs.

Grievances and disputes are handled at TVA projects by a valley-wide agreement with the TVA Trades and Labor Council. Procedures, worked out long before the AEC descended on Paducah, kept much unrest from blossoming into strikes, but it is evident that TVA was only slightly better prepared to cope with the extraordinary pressures that developed in the area than were Ebasco and F. H. McGraw.

Like McGraw, however, TVA changed its labor relations techniques once it had discovered what was wrong.

There is a feeling in the area hard to explain, but which amounts almost to a reverence for TVA and what it has done for the undeveloped Tennessee Valley. The depth of this feeling varies with the amount of thinking workers appear to have done about the changes that have come into their lives in the past decade or two.

Just how much the acceptance of TVA means in construction labor relations is impossible to assess, but there is no doubt that a certain predisposition to meet TVA more than halfway has helped at Shawnee.

• **Gloves on**—EEI and Ebasco moved into Joppa in early 1951. Almost immediately both client and builder ran into troubles that they found hard to pin down. Some of Ebasco's key people, apprehensive as a result of all they had heard about the troubled labor history of downstate Illinois, established a policy of handling their new labor force with kid gloves.

Labor sensed the anxiety and, rather clearly, spent the next couple of years walking over the contractor and its client. The stage was set in the first months when some officials of Ebasco went to see Evan Dale, a southern Illinois labor leader who had been picked by the AFL laborers international union to run a four-local pool formed to supply laborers to Joppa, Paducah and the TVA power plant.

Dale was—and is—a powerful figure in southern Illinois labor. Just how influential he is is debatable, but it's certain his weight is felt beyond his own laborers' union.

Just what conversation occurred is anybody's guess. Ebasco said a shakedown was attempted. EEI had the same impression. Dale denies a shakedown attempt.

In fairness, it must be pointed out that there is no reason to date to believe that any of the fifty-odd strikes that occurred at Joppa during the next couple of years was in reprisal for unmet extortion demands. Nearly half of the walkouts resulted from jurisdictional arguments, or were in protest of work assignments. Causes of the others ranged from pay disputes to resentment of workers over the firing of their friends who were drunk on the job.

That there was gambling and drinking on the job at Joppa is undeniable. It is doubtful, however, if these vices prevailed at Joppa to anywhere near the degree charged in Illinois papers. But the fact remains that Ebasco found itself at the mercy of labor: It lost in an effort to gamble leniency and concessions in the hope of winning cooperation.

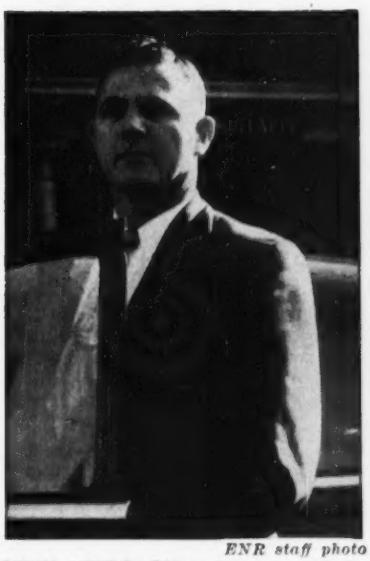
• **Gloves off**—When the Joppa job was handed over to Bechtel Corp., a few months ago, details then were sketchy; the principals just weren't talking—except by innuendo.

This seems to be the story:

Last spring EEI knew drastic steps were needed to fight rising costs and labor troubles at Joppa. First step was to assume active control of the job, even though Ebasco was still contractor. During this period EEI found itself talking over its problems with other contractors—two, it appears—both of whom were sympathetic but unwilling to take over the construction of the project.

Then, say EEI officials, Bechtel Corp. was asked to make a study of the job. Its recommendations were simple: Close down, reorganize and reopen. EEI president, J. Wesley McAfee said the suggestions were confirmed by two consulting engineers. Then McAfee asked Bechtel if it would take over the job.

• **Work gloves on**—When Bechtel moved in, things began to change. John O'Connell, Bechtel's industrial relations vice-president, has a reputa-



ENR staff photo

NEW APPROACH to Joppa is made by Bill Williams, Bechtel negotiator.

Photo by Paducah Sun-Democrat

MOUNTAIN BOY, McKinley Ralston, is one key to labor peace at Paducah.

. . . Paducah: Labor lesson for an industry

tion for being tough—but fair—with labor. He worked out a project agreement with local business agents and with international officers of the 16 crafts on the Joppa job.

Meanwhile, Bechtel and EEI were tightening down in other ways. Several subcontractors were dumped and costs were carefully analyzed. When, after a month, the job was reopened, a new deal was apparent.

For example, there were no more jobs for laborers as gatemen at gates that were never closed, or as parking lot attendants. Informal liquor traffic vanished, and formerly idle job stewards found themselves working with their men, with time made available to them to handle grievances.

O'Connell reached out to France for Bill Williams—a labor consultant for Mutual Security Agency—to stay at Joppa as resident labor relations man. Williams knows labor, was, in fact, business agent for a boilermakers' local in Portland, Ore. He believes there's nothing unique or fearsome about the construction workers at Joppa, chooses to discount the effects of past labor history in the area on today's work force.

• **Not clear yet**—Hardly had Bechtel reopened the job when trouble hit. The ironworkers—only Paducah local, besides the laborers, with jurisdiction at Joppa—tied up the plant for a month because Bechtel wanted to hand-pick six ironworkers.

Bechtel insists it had the right to name 50% of its work force; The ironworkers' business agent, William Sanders, says he hasn't signed the agreement that says so. And besides Sanders defines the issue as one of hiring local people—not workers who've been in the area three years, but long-time residents—first.

There is no doubt that both Bechtel and Sanders knew a showdown was in the making. For Bechtel, a turning point may have been reached when a federal court, whose aid was invoked not only by Bechtel but also by the ironworkers international union, restrained Sanders' workers and friends from keeping an informal blockade beside the road to the Joppa plant.

The order still is in effect. Meanwhile, the ironworkers international has taken 15 Illinois counties from Sanders' four-state jurisdiction, and has sent in an organizer—suitably bodyguarded—to set up a new local with headquarters to be located at Cairo.

This is perhaps the most extreme example of a battle between local leaders and internationals for control in the Paducah-Joppa area. Many locals already have given over supervision to internationals, with varying degrees of struggle.

Sanders has become a rallying point for building craftsmen around Paducah. It's possible that the ironworkers international has a bear by the tail, for there's little doubt that the new local is having trouble getting members other than those it supplies to the Joppa project.

All sides are giving serious thought to the consequences of expelling or disciplining Sanders, for it is known that he has already set up a dummy group which could easily receive his membership while he waits to make a deal with, say, the United Construction Workers of the United Mine workers' District 50.

• **The future**—At Calvert City, not far from Kentucky Dam, five plants have been built since the war, because of availability of TVA power. Construction labor, already starting to run out of work in western Kentucky, is looking at those plants as models of the industrial growth they hope will follow AEC and TVA into their countryside.

Construction of the Calvert City industrial cluster was hampered by some labor disturbance but not nearly so much as that which has come with AEC. In one or two of the little plants, project agreements were worked out, and on at least one, labor cooperated with the contractor in a nearly strike-free job.

• **The lessons**—Three years of battling—and what now appears to be an approach to conclusion, seem to point up these lessons:

• For contractors—If you're the biggest in the area, you must take the lead in stabilizing labor relations. Regardless of your size (in relation to the job) you must see to it that some agreement is reached, that there is machinery for settling disputes without work stoppages—and that this agreement is rigidly adhered to.

• For the community—If you honestly want your area to progress, businesswise and in the esteem of your fellow citizens, you must back orderly development with the full force of public opinion; with cooperation on all levels of government, and on all levels of civic life.

• For labor—If you want your labor force to keep working after the big jobs for which it was assembled have been finished, earn yourselves a reputation for peaceful and reasonable settlement of disputes, not only in your dealings with the contractor, but also in your dealings among your various unions.

Authority fired

Florida turnpike body is suspended by governor over repeating surveys

Acting Gov. Charles E. Johns has suspended the five-member Florida Turnpike Authority, charging it with having wasted state funds by having new engineering studies made for a projected 103-mi toll road when adequate surveys were available and could have been used with minor changes.

At the same time, the acting governor appointed a new authority and instructed it to have the projected $62-million toll road from Hollywood, just north of Miami, to Ft. Pierce completed by April 1, 1955.

The suspended authority was appointed by the late Gov. Dan McCarty last June under an act limiting its powers to build toll roads to the southern end of the long-discussed Jacksonville to Miami turnpike.

Previously all Florida toll road studies were the responsibility of the State Road Department, which had engaged Parsons, Brinckerhoff, Hall & MacDonald, New York, as consultants on design and Coverdale & Colpitts, New York, for traffic and earning reports. In December 1952, these firms had reported to the State Road Department on a 314-mi toll highway from Jacksonville to Miami and on a 130-mi cross-state road (ENR Jan. 8, p. 26).

Following its appointment in June, the suspended turnpike authority employed for new engineering and cost studies the firms of Howard, Needles, Tammen & Bergendoff, New York; the Rader Engineering Co., Miami, and Smith & Gillespie, Jacksonville. Coverdale & Colpitts also were employed to make the traffic survey between Ft. Pierce and Hollywood. These engineering firms recently made favorable reports on that project (ENR Oct. 22, p. 23).

In suspending the turnpike authority members, the acting governor charged that the employment of new firms for the engineering and cost studies was a waste of state money. He said that the existing engineering and cost studies had been made by a nationally recognized firm and that they were available to the authority and could have been updated at much less cost.

The next step is in doubt. The suspension order is subject to review by the state senate, according to lawyers in Florida. But, this body doesn't convene again until April 1955.

If the suspension order isn't supported, actions taken in the meantime by the newly appointed authority would be of uncertain validity.

Highway officials call construction funds most pressing problem for nation's roads

Top speakers at Pittsburgh meeting advance opposing views on federal participation in highway picture

J. Roland Carr
Associate Editor

The much discussed question: "How to raise additional funds for an adequate national highway program?", got a healthy going-over last week in Pittsburgh at the 39th annual meeting of the American Association of State Highway Officials. Attendance at the four-day meeting was over 1,000.

One congressional leader opposed the continuation of the federal tax on gasoline on the assumption that the same rate of additional tax would be collected by the states. Three other congressmen, however, advocated continuance of the tax, and stressed the need for increasing federal aid for highway construction.

Similar views on the federal gas tax were expressed by Charles M. Ziegler, Michigan State Highway Commissioner, in his presidential address at the opening session.

"Under present conditions," declared Ziegler, "many states believe that if the federal government did get out of this field, several of the states would lose highway funds by being unable to increase their own gasoline taxes to compensate for the loss of federal aid.

• Federal out?—The chairman of the Senate Public Works Committee, Senator Edward Martin of Pennsylvania, came right out for complete withdrawal of the federal government from the field of gasoline taxation.

"We (of the committee) recognize the fact," declared Martin, "that highway transportation must keep pace with expanding needs, if America is to forge ahead in security, economic strength and prosperity."

"But we should consider the financing of highway, bridge and tunnel projects by the collection of tolls, wherever it is financially feasible to make them self-liquidating. Consideration should be given to obtaining more highway construction funds by placing tolls on some roads and bridges already built—those which serve large centers of population.

"Careful consideration should be given to whether or not federal participation in the development of roads, bridges and tunnels should be continued as at present or whether it should be limited to research, coordination and supervision.

"For the sake of economy, the number of governmental units dealing with highways should be reduced. At present there are 40,000 civil subdivisions of government having some jurisdiction over streets and roads. These include townships, boroughs, counties and cities.

"More effort should be put behind a long-range, comprehensive plan for a national system of interstate highways based on our commercial and military requirements. Highway planning to reduce traffic congestion around our large cities should be coordinated with the needs for civilian defense. Rapid dispersal by means of an adequate system of good wide roads is the best defense against any attack on civilian population."

TAKES OFFICE—A. E. Johnson, chief engineer for Arkansas State Highway Department, is the new president of ASHO. A University of Arkansas engineer, he has headed engineering work for the department since 1947, and was acting director of the whole department twice—in 1951 and early this year.

• Federal bureau stays in?—Opposing Martin's stand, George A. Dondero of Michigan, chairman of the House Committee on Public Works, declared that such a move would be a tragic mistake, particularly if it included abolishing the Federal Bureau of Public Roads. Such action, he said, "would result in chaos since there would be no coordinating agency to integrate the highway programs of the several states."

Senator Francis Case of South Dakota, chairman of the Senate's Public Works Subcommittee on Roads, went even further, to call for: Increased federal appropriations for highways to the amount collected by the federal tax on gasoline.

"Apply a portion of these added funds to meet the nation's security needs, including belt routes and arterial outlets, for cities over 10,000 population," said Case. "Permit states to apply portions of their federal-aid apportionments on primary highways to toll, or limited-access roads under specific authorizations and conditions. Take the super-trucks off highways that are not wide enough or strong enough to stand them. Make a cur-

SWAPPING VIEWS on the nation's highway problems were Federal Public Roads Commissioner Francis V. du Pont (left) and Michigan State Highway Commissioner Charles M. Ziegler.

rently revised driver's handbook available to the public schools; hold a driving course in every high school."

The fourth congressional speaker on the program, J. Harry McGregor, chairman of the House Public Works Subcommittee on Roads, also advocated the continuance of the federal tax on gasoline.

• **Du Pont talks**—In his first major address since taking office on April 1, Commisioner of Public Roads Francis V. du Pont promised the ASHO maximum recognition of individual state problems and the minimum of red tape, review and delay in the Federal Bureau of Public Works, which he administers. He reported that he had effected economies in the operation of the BPR that will amount to $400,000 during year starting July 1, 1953.

• **Federal-aid policy statement**—Reversing its 20-year-old policy of urging the U.S. to retire from the field of gasoline taxation, the administrative committee passed a resolution advocating continuance of the federal gas tax. The resolution, which must be ratified by at least two-thirds of the member states to become effective, constitutes a new policy on federal aid.

It requires an increase in federal aid from the present $575 million to $900 million annually; with authorizations as follows:

Interstate system—$250 million.
Primary system—$292.5 million.
Secondary system—$195 million.
Urban system—$162.5 million.
Total—$900 million.

The resolution recommends that proportionate increases be provided for forest highways, bridges and parkways. It also states that interstate highway funds should be apportioned on a basis of a matching ratio of 75% federal and 25% state, and that these federal funds be distributed on the basis of population of the states, with no state receiving less than three-fourths of one percent of the federal money. According to the resolution, the states would like to have the authority of switching up to 25% of their federal-aid funds for primary, secondary and urban highways from one system to the other. This would be subject to the approval of the Commisioner of Public Roads, in all instances. And finally, the resolution requests that its recommendations be applicable for fiscal years ending June 30, 1956 and June 30, 1957.

• **Meritorious award**—The George S. Barllett award for meritorious service in the highway field was presented to D. C. Greer, state highway engineer of Texas.

Defects found in building that failed

Grand jury doesn't specify possible causes of mishap at Scarsdale, N. Y., but finds no criminal negligence

A grand jury investigating the collapse of a reinforced concrete building under construction in Scarsdale, N. Y., reported last week that it was unable to determine the cause of the disaster. But its presentment charged that "there existed in said structure at the time of the collapse certain defects in design, material and construction which may have caused or contributed to the collapse."

Three workmen were killed and ten injured when a corner of the four-story flat-plate building gave way at 6:10 pm on July 10. The men had been working overtime to complete pouring of concrete for the fourth floor of the $1.5-million office building (ENR July 16, p. 26).

Concrete work was being done by Rizzi Construction Co., of New York City. Arthur D. Stolle-Delval Corp., of White Plains, N. Y., was the general contractor. The building had been designed by Joseph T. Sibley, architect, of Bronxville, N. Y., and Ferdinand T. Loehninger, consulting engineer, New York City, with Lambert & Dell'Abate as associated engineers.

The grand jury, sitting in White Plains, N. Y., heard eye-witnesses, workmen who had been on the job at the time and representatives of the contractors. It also called Shortridge Hardesty, of Hardesty & Hanover, who had been engaged as a consultant by the Westchester County District Attorney, and Elwyn E. Seelye, of Seelye, Stevenson, Value & Knecht, who had been engaged by the Village of Scarsdale.

• **Nobody indicted**—In its presentment, the jury reported, "None of these witnesses has been able, nor has the grand jury been able, to give the proximate cause of the disaster. Likewise, it has been unable to determine that any individuals were guilty of culpable criminal negligence. Accordingly no indictment has been found."

The jury, though satisfied that defects existed in design, material and construction, did not enumerate them. It expressed the opinion that "they could have been averted by more adequate over-all engineering or professional supervision and inspection."

• **Jury recommendations**—The jury also believed that many building codes throughout Westchester, the county in which the disaster occurred, are "totally inadequate to meet the ever increasing changes in construction materials and methods, and the ever increasing size of structures . . ." It recommended that those codes be modernized or the New York State Building Code be adopted.

The jury also recommended that local codes be amended to fix responsibility for construction supervision: When a licensed architect-engineer supervises the work, he should submit an affidavit that it has been carried out according to plans and in accordance with the law. Then, the responsibility of the building inspector would be of a general supervisory nature. Otherwise, he would be required to inspect the job fully. When an architect engineer has not been engaged to supervise the work, the building inspector may require the owner to employ one.

Double trouble delays lift-slab job

A minor construction mishap and labor trouble are delaying construction on the Christopher Rhodes Elementary School in Warwick, R. I., a one-story concrete building which is now being constructed by the lift-slab method.

The mishap occurred when one of the five sections of the 9½-in.-thick lightweight concrete roof slab, which were cast on top of the ground-floor slab, was being lifted into place by hydraulic jacks on the columns that will support the roof. Despite the use of a separating compound, floor and roof stuck together. The attempt to lift the roof slab resulted in the ripping out of about 30 sq ft of the 5-in.-thick concrete floor, damaging water, heating, electrical and drain lines previously installed.

Randolph Anderson, of Harkness & Geddes, Providence architect, said a study was being made to determine if the separating compound, the method of applying it or some other factor is at fault. The A. C. Horn Co., suppliers of the material, is investigating to determine the cause of the sticking.

Meanwhile, the Dimeo Construction Co., the general contractor, and the New England Lift Slab Corp., subcontractor for the lifting operation,

have successfully raised a second section of the roof.

But their troubles weren't over. Union carpenters struck the job, contending that an out-of-state millwright had been employed to work on the hydraulic lifting operation.

Jerome Carney, business agent for the Providence, Pawtucket and Central Falls District of the AFL affiliate, said the job would stay struck until the subcontractor hired local help.

Plans for Hood Canal floating bridge ok'd

The Army Engineers has approved plans of the Washington State Toll Bridge Authority for a $19-million floating bridge across Hood Canal.

The bridge usually is regarded as part of a $100-million project which would include the spanning of Puget Sound west of Seattle (ENR Aug. 27, p. 24). The authority has applied to the corps for permission to bridge the sound at one of four locations.

The Hood Canal bridge, from Lofall to South Point, would consist of a floating structure 6,185 ft long, with navigation-channel clearances at either end.

Salt water barrier survey group named

The California Water Project Authority has completed selection of a board of consultants to participate in the $500,000 study of the feasibility of a salt water barrier or system of barriers in San Francisco Bay.

Raymond A. Hill, Los Angeles engineer, had been named earlier as chairman of the consultants' group (ENR Sept. 24, p. 24). Other members will be Brig. Gen. Hans Kramer (Ret.) who is associated with Sverdrup and Parcel, San Francisco; Malcolm Pirnie, senior member of the firm of Malcolm Pirnie Engineers, New York; Philip C. Rutledge of Moran, Proctor, Muesser & Rutledge, New York; and Charles E. Deleuw, president of Deleuw, Cather & Co., Chicago.

Lacey Murrow to serve on Hoover Commission

Lacey V. Murrow, director of competitive transportation for the American Association of Railroads, has been named to the water and power resources task force of the Hoover Commission.

The former Air Force brigadier general will replace Malcolm Elliott, St. Louis consulting engineer, whose appointment was announced last week (ENR Nov. 12, p. 22). Elliot had to decline because of ill-health.

FHA to take new look at modern design

The Federal Housing Administration is going to revise its thinking on architectural style of house plans submitted to it for approval in connection with mortgage guarantees.

FHA Administrator Guy Hollyday told the annual convention of the Mortgage Bankers Assn. at Miami Beach last week that FHA will loosen its rigid attitude on house designs. He acknowledged that FHA had "been forcing builders to build to a mortgage pattern instead of for the housing market." From now on, FHA will be more tolerant of contemporary designs, instead of turning them down cold.

Army Engineer Center has new staff head

Col. Kingsley S. Anderson is the new chief of staff of the Engineer Center, Fort Belvoir, Va., filling the post held until last month by Brig. Gen. Don G. Shingler, recently assigned as North Pacific division engineer. (ENR Oct. 1, p. 26) Col. William W. Lapsley, assistant chief of staff, G-4, at the Engineer Center, served as acting chief during the interval.

Uranium plant to be built in Navajo Indian country

Western-Knapp Engineering Division of Western Machinery Co., San Francisco, has been awarded a contract to build the first plant in the U. S. designed to treat uranium-bearing ores. Other plants now treating uranium ores have been adapted from plants previously handling other ores or have been placed in pre-existing installations.

This plant will be built at Shiprock, N. M., for the Navajo Uranium division of Kerr-McGee Oil Industries, Inc., of Oklahoma City, Okla. The new plant will be used to produce uranium oxide for the Atomic Energy Commission.

The Shiprock plant will be the first to use the so-called acidulation process of separating uranium oxide from carnotite ore, on which Western-Knapp Engineering has done a good deal of experimental work. In addition to uranium, a substantial amount of vanadium is expected to result as a by-product.

The town of Shiprock is located about 90 miles north of Gallup, in Navajo Indian country near the center of U. S. uranium mining activity.

The plant is scheduled for completion by December, 1954. Estimated cost is about $3 million.

In memory of Clifford Holland

The Port of New York Authority last week unveiled a bronze bust of the late Clifford Milburn Holland, the engineer who built the world's first long underwater vehicular tunnel, which now bears his name. Mr. Holland, who died in 1924 at the age of 41—on the eve of the holing through of the tunnel under the Hudson River—was said by many to have sacrificed his health through his untiring work and devotion to the project. He was chosen 10 years earlier to head this unprecedented task and his ideas and design for the tunnel were accepted over plans submitted by many of the internationally known engineers of the day. Particularly notable was his solution of the problem of tunnel ventilation, about which little was known previously. The greatness of his contribution is attested by the fact that the Holland Tunnel has remained a model for tunneling methods and design for the last 26 years.

TWELVE JACKS, of 50-ton capacity each, hold bridge deck aloft while crews remove pier so they can place new foundation 10 ft deeper.

Shoring frame aids bridge underpinning

Rather than underpin individual shafts of three bridge bents near Carlsbad, Calif., San Diego Gas and Electric Co. builders developed a 23-ton steel shoring frame to permit underpinning a whole bent at once.

Object of the work was to lower the bridge's foundation 10 ft without interfering with traffic above. Greater channel depth was needed to provide increased flows to a 240-acre lagoon being excavated to provide cooling water for a new steam electric generating plant.

In preparation for each underpinning task, crews under the company's construction superintendent, Magnus Hjalmarson, slid the shoring frame in around the bent, seating the frame on previously placed concrete pads outside the bridge lines. Twelve 50-ton hydraulic jacks on the frame pushed upward on the soffit of the bent cap, unloading the bent. Shafts and old footing were removed and excavation to the 10-ft greater depth proceeded; the hole was dewatered by wellpoints. The new footing and shafts were placed, load was transferred back to them and the frame was disengaged for the move to the next bent.

For the jacking operation all twelve jacks were connected to one master cylinder. Load transfer, from a bent to the frame, was accomplished by pumping up the jacking system until the frame deflected by a computed amount. The jacking pressure observed at this point then was maintained throughout the underpinning operation. Jacking pressures were 3,880 psi to hold a bridge weight of 42.8 tons at the outer bents; 4,310 psi to hold 47.65 tons at the center.

The shoring frame was fabricated by Bethlehem Pacific Coast Steel Corp., Los Angeles works.

Raritan River cleanup plans move forward

The Somerset-Raritan Valley Sewerage Authority, agency for cleaning the upper end of New Jersey's grossly polluted Raritan River, became a reality last week with the naming of six men to serve as authority members until 1958.

Establishment of the authority had been a major recommendation of consultants Sheppard T. Powell and Whitman, Requardt and Associates, who have reported that a $7.75-million, 28-mgd project would solve Somerset County's problem (ENR June 11, p. 27).

The authority, including two men from each of the three communities to be served—Somerville, Bridgewater and Raritan—will soon select legal counsel and consulting engineers.

Meanwhile, the Middlesex County Sewerage Authority, downstream on the Raritan, has assigned design of its $22.5-million disposal project to Metcalf & Eddy, Charles K. Kupper, Elson T. Killam (all in on the early planning), plus Bogert-Childs Engineering Associates. Detailed plans are to be completed in ten months.

Road probe ends

Charges in Arkansas scandal end in one conviction—four men cleared

Legal action stemming from the 1952 Highway Audit Commission investigation of Arkansas Highway Department practices under former Governor Sid McMath has ended with the conviction of only one of five persons charged with felonies.

Early last year HAC investigations turned up sensational evidence of destroyed records, phantom construction equipment and bizarre money deals involving campaign contributions (ENR Jan. 31, 1952, p. 21, Feb. 7, 1952, p. 26). The investigation covered the highway department's activities from July 1, 1947, to July 1, 1951.

Even before legal action was initiated, the HAC probe led to adoption of two corrective measures: 1. An accounting firm was hired to do a $25,000-revamping of the state highway department's accounting procedures, and 2. County foremen, whose low salaries were blamed partly for the department's inefficiency, got $25 per month raises to bring their pay to $200 (ENR Feb. 21, 1952, p. 26).

• **Auto dealer convicted**—W. Monroe Treadwell, Morrilton, Ark., automobile dealer, was convicted on two counts of obtaining money under false pretenses. On the recommendation of the jury, he received two one-year suspended sentences. Sheriff Marlin Hawkins of Conway County, Treadwell's son-in-law, indicted on the same counts, was acquitted by the same jury.

These men were charged with obtaining $10,850 from the Freshour Bros. contracting firm of Sweet Home, Ark., under the guise of "truck rental" as a portion of the proceeds of a material contract between the highway commission and the firm. It was alleged that they induced the firm to bid $2.50 a cubic yard for gravel, after first receiving a $1.80 quotation. Treadwell collected 70 cents per cubic yard from the firm for rental of trucks which the state charged were not used and not desired by the contractor.

• **Illegal soliciting charged**—An indictment charging John K. Brown of Arkadelphia with soliciting a bribe while he was highway department purchasing agent was dismissed by the court on a pre-trial motion by Brown's attorney. A. D. Mason of Camden, highway commission member under McMath, was acquitted of a charge of accepting a bribe as was M. C. ("Fritz") Methvin of Little Rock, former highway department engineer.

PRESTRESSING of 94-ft roof beams for a gymnasium in St. Louis, Mo., was observed with interest by the principals involved in design and construction: (left to right) Neal J. Campbell, structural engineer; Albert H. Baum, St. Louis building commissioner; Eugene J. Mackey, architect; Rev. James T. Curtin, superintendent of high schools for the Archdiocese of St. Louis; Joseph D. Murphy, architect; and Sam Rallo, contractor.

94-ft concrete roof beams set record for prestressed members cast in place

Concrete roof beams 94 ft long have been cast and prestressed for a gymnasium at the Bishop DuBourg Catholic High School, St. Louis, Mo. These are the longest prestressed beams to be cast in place in a building in the U. S. (Prestressed roof beams for a high school in Greensboro, N. C., hold the U. S. record for span, but these 120-ft members were precast and tensioned on the ground—not in place.)

The DuBourg gymnasium, 94x110 ft in plan, is at the end of one of several wings comprising the school, which is being constructed at a cost of $3 million ($1.20 per cu ft).

According to the contractor, use of prestressed concrete beams to support the gymnasium roof saved $15,000 compared with fireproofed structural steel. It is also estimated that the beams would have been twice as deep if made of conventional reinforced concrete.

• **Beams support lighting**—The prestressed beams are spaced about 13 ft on centers, with skylights in the spaces between them. To avoid a striped effect, light will be diffused by an eggcrate baffle under the roof. The baffle will be composed of glass-fiber curtains 4 ft deep, suspended on frames. Fluorescent fixtures, hung below this web, will supply artificial light.

The skylights will be supported on 14-in. high concrete walls atop the outer edges of beam flanges. The space between these 6-in. thick walls will be partly filled with lightweight concrete and covered with built-up roofing, to serve as drainage trough.

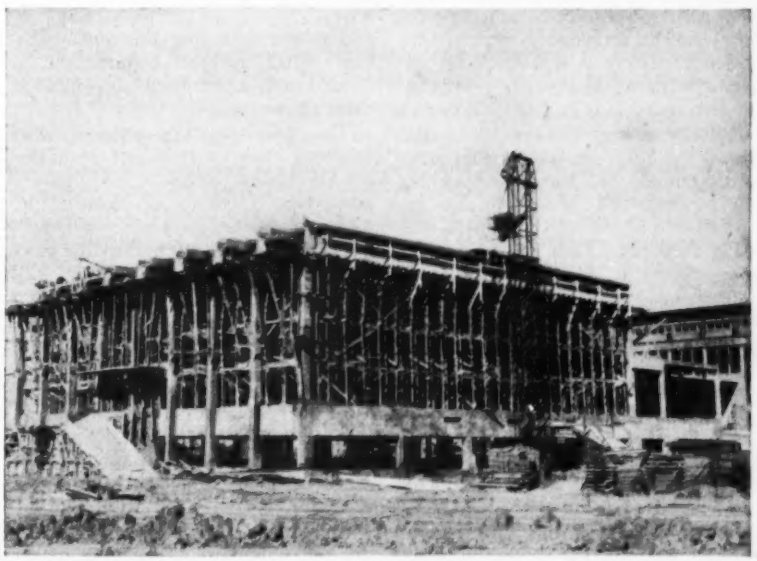
• **3-D prestress**—The beams were designed as T-sections, with flanges 4 ft wide and 6 in. thick, and web, 5 ft deep and 8 in. thick. The concrete attained a strength of 3,700 to 4,000 psi in five days.

Each beam was prestressed by 14 cables, each consisting of twelve 0.196-in. dia steel wires. Placed in flexible metal tubes to prevent bond with the concrete, the wires were tensioned to 143,000 psi with a double-acting hydraulic jack five days after the concrete had been cast. The cables were anchored to the beam ends with conical wedges, placed by the hydraulic jack and then grouted in to establish bond (Freyssinet method).

Concrete columns supporting the beams were notched at the top to act as a hinged support during the tensioning operation. One support of each beam was notched at the bottom also to permit some sway. Later, the notches were filled with grout, and vertical cables anchored in the column tops were tensioned to tie the beams to the vertical supports.

Prestressing was also applied to the beams in a transverse direction by cables passing through transverse concrete stiffening members between the main roof beams.

Prestressing operations were carried out under the supervision of the Freyssinet Co., of New York City. C. Rallo Contracting Co., Inc., of St. Louis, is the general contractor. Murphy & Mackey is the architect, Neal J. Campbell, structural engineer, with Fred N. Severud as consulting engineer.



ROOF BEAMS for the gym were cast in place, supported on wood falsework.

MEETINGS

APHA annual session held in New York

Health aspects of disposal of wastes as fertilizer; administrative problems of extending sanitary services in fringe areas of cities; field experience with the membrane filter for water analyses; and inter-American activities for the promotion of environmental sanitation were major subjects of interest to sanitary engineers attending the 81st annual meeting of the American Public Health Assn. in New York City last week.

"By proper processing, sanitary engineers can safely return most human wastes to the soil, where they belong," claimed Leroy Van Kleeck, principal sanitary engineer in the Connecticut State Department of Health. He called heat-dried activated sludge the best sewage product for the soil and warned against general use of liquid sludge—raw or digested.

Prospects of composting and its public health aspects were discussed in a paper by C. G. Golueke and H. B. Gotaas of the University of California. The apparent absence of public health hazards was cited, and the likelihood that composting will become extensive was considered. Economics will determine composting's future, and its prospects are good, were the conclusions.

Dr. Paul Kabler of the environmental health center in Cincinnati reported on one year's comparative tests of the membrane filter and the Standard Method fermentation tube test (the Most Probable Number procedure) for bacteriological examination of water. There is reportedly no apparent relationship between results by the two tests. It is evident that turbid samples are hard to handle on the membrane filter; small quantities must be examined, and therefore accuracy can be lost. Of 1,706 samples examined simultaneously by MF and MPN methods, 73.8% were found to be in agreement. Results indicate that the two methods may not both measure precisely the same group of organisms; sanitary significance of the differences in results by the two methods are yet to be determined, said Dr. Kabler.

Engineers' attention in the APHA meeting was devoted for a half-day to the first meeting of the newly organized U. S. section on the inter-American sanitary engineering. This session, presided over by the U. S. Director, E. J. Cleary, head of cooperative efforts toward public health improvement throughout the Western Hemisphere. It was pointed out that over 200 sanitary engineers from Latin America now have done graduate work in the U. S.

Among recipients of the APHA's Lasker Awards for 1953 was Earl B. Phelps, honored posthumously. Professor Phelps had been informed of his choice for this award before his death earlier this year. He was cited for his work in stream pollution indices, chlorination, and sewage treatment.

Building research group discusses porcelain enamel

Directions that future development of curtain walls for buildings might take were indicated by several speakers at a conference on porcelain enamel in the building industry, held last week at the National Academy of Sciences in Washington, D. C. But heavy emphasis was placed on the need for more research to be carried out on all phases of building design and construction.

The conference was sponsored by the Building Research Advisory Board and the Porcelain Enamel Institute. It was the first that BRAB has sponsored devoted to a specific material. Previous BRAB sessions, such as the ones on building in tropical climates and on condensation, analyzed problems of more general nature. In these meetings, authorities on the various phases of each subject summarize current knowledge of the topic, and they and others attending the session discuss what further information is needed and how it might be obtained through research.

The conference on porcelain enamel followed the pattern of previous BRAB studies. Speakers outlined the properties, method of manufacture and applications, detailed experiences with the product and pointed to problems hindering its improvement and greater use. Much attention was given to its possibilities for curtain walls for buildings.

"Porcelain enamel has remarkable qualities as a facing material," said William Lescaze, architect, New York City. "It is permanent. It can provide beautiful colors. It can be used as an integral decoration."

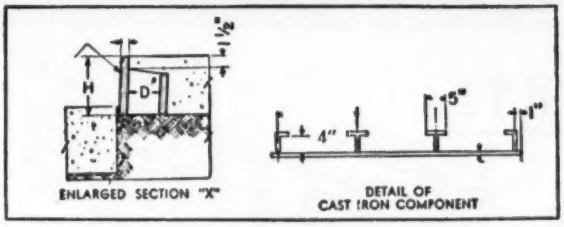
• **Greater use indicated**—However, he did not believe that the building industry was going far enough by developing porcelain-enameled metals just as a facing. More consideration should be given to its backing, its vertical and horizontal joints and method of attachment to the building frame. Wall and window should be combined as a unit. Eventually, other parts might be integrated, to form, perhaps, a wall, window and sunshade unit. Going a step further, the ultimate goal might be a prefabricated wall with provisions for elements of the heating and cooling systems, possibly also lighting and telephone systems.

But, Mr. Lescaze contended, the time to invent, develop and test a building material is not when an actual building is on the drawing board. Wise, sound, intelligent research must be done before then.

• **More research**—Also stressing the need for cooperative, unprejudiced research to improve building construction, E. X. Tuttle, vice-president, Giffels & Vallet, and L. Rossini, architect-engineer, Detroit, expressed the opinion that greater use of porcelain enamel awaited the development of architecturally desirable and workable wall systems. He outlined the requirements that he believes a curtain wall should have:

It should be a wall system and not just a unit. Fingers should be extended from the building skeleton to which there should be attached light metal curtain units having their supporting grid systems either between surfaces or exposed, all of which could be applied from inside the building. Joints between units and between units and sash and doors would not only be weathertight but flexible enough to permit movement of both curtain wall and building. The wall should be simple to permit installation by semi-skilled labor. The unit should be available in several sizes to permit adherence to scale of the structure. The outer surface should be broken in a pattern to eliminate "oil canning" and the inner structure should provide for moisture barrier as well as for the application of various interior finishes. Furthermore, the units should be available in a wide range of colors.

G. W. Parker and G. M. Herbert, of Oak Ridge National Laboratory, reported that they had found porcelain enamel to be an excellent material for use in radiochemical laboratories. In contamination susceptibility and ease of decontamination, they rated it second only to plate glass and decidedly superior to stainless steel and plastics.



...installed in 1938

1925—The apparently irrational idea of combining two weak materials—cast iron and concrete—into an impregnable unity popped up.

1932—A trial radial section of armored concrete curb was installed at the New Jersey entrance to the Holland Tunnel to replace a worn stone curb set in 1927.

1938—9200 lineal feet of armored concrete was installed on the New York and New Jersey approaches to the Lincoln Tunnel, 75% being curbs entirely accurate to both horizontal and vertical curves.

1953—A recent inspection showed every single foot of the curb to be without blemish.

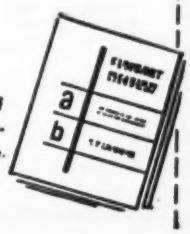
2032—From its performance to date it is reasonable to forecast a century of immunity to impact, abrasion and corrosion.

NOTE—*It is erroneous to think that the concrete "backing" saves the cast iron from breaking. Without the one correct type of anchorage, fifty feet of concrete would not save the cast iron.*

FLOCKHART FOUNDRY CO.
75th Anniversary
1879 • 1954

WRITE FOR COMPLETE INFORMATION TODAY!

• ARMORED CONCRETE . . . a product of FLOCKHART FOUNDRY COMPANY carries a 15-year "cast iron" guarantee.



FLOCKHART FOUNDRY CO.

90 POLK ST., NEWARK 5, N. J.

Gentlemen:
Please send Flockhart Catalog #139

name.....

co. name.....

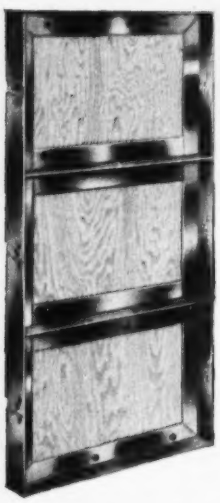
st. and no.....

city, state.....

Simplified Concrete Forming System

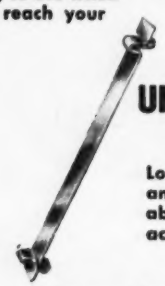
for Lowest all around Form Costs!

3 BASIC ELEMENTS



UNI-FORM Panels

Prefabricated . . . ready to use when they reach your job.



UNI-FORM Tie

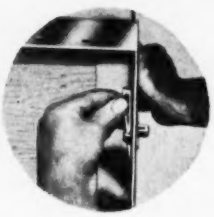
Locks, spreads and ties . . . absolutely accurate.

UNI-FORM Tie Key

Wedge-Shaped for fast, easy insertion.

3 SIMPLE OPERATIONS

1 Place the Uni-Form Tie Loop into the Tie Hole.



2 Set the Tie Key into the Tie Loop. Panel and Tie are then locked into one integral unit.

3 Bring the next UNI-FORM Panel into position . . . insert the Tie Key. The assembly is now completed.

UNI-FORM® Panels Assure Faster Erection . . . Automatic Accuracy

ALIGNMENT ON 1 SIDE ONLY!

FREE Engineering Service!

Complete job analysis . . . forming recommendations, bills of material supplied by our staff of experienced engineers . . . **PLUS** . . . Field Service . . . anywhere . . . anytime to insure proper starts and maximum economy on your job. Send us a set of plans for FREE estimate. No obligation.

Rent UNIFORM Panels With A Purchase Option

Try* Before You *Buy

UNIVERSAL FORM CLAMP CO.

GENERAL OFFICES AND FACTORY: 1238 N. KOSTNER • CHICAGO 51, ILLINOIS

OFFICES AND WAREHOUSES:

CLEVELAND, OHIO, 24901 Lakeland Blvd. • BALTIMORE, MD., 661 S. Monroe St. • HOUSTON, TEXAS, 2314 Preston Ave.

SAN LEANDRO, CALIF., 2051-9 Williams St. • LOS ANGELES (INGLEWOOD) CALIF., 241 South La Brea St.

DISTRIBUTORS IN PRINCIPAL CITIES

Service Wherever You Build . . . Coast to Coast

Copyright 1953 by UNIVERSAL FORM CLAMP CO., Chicago 51, Ill.

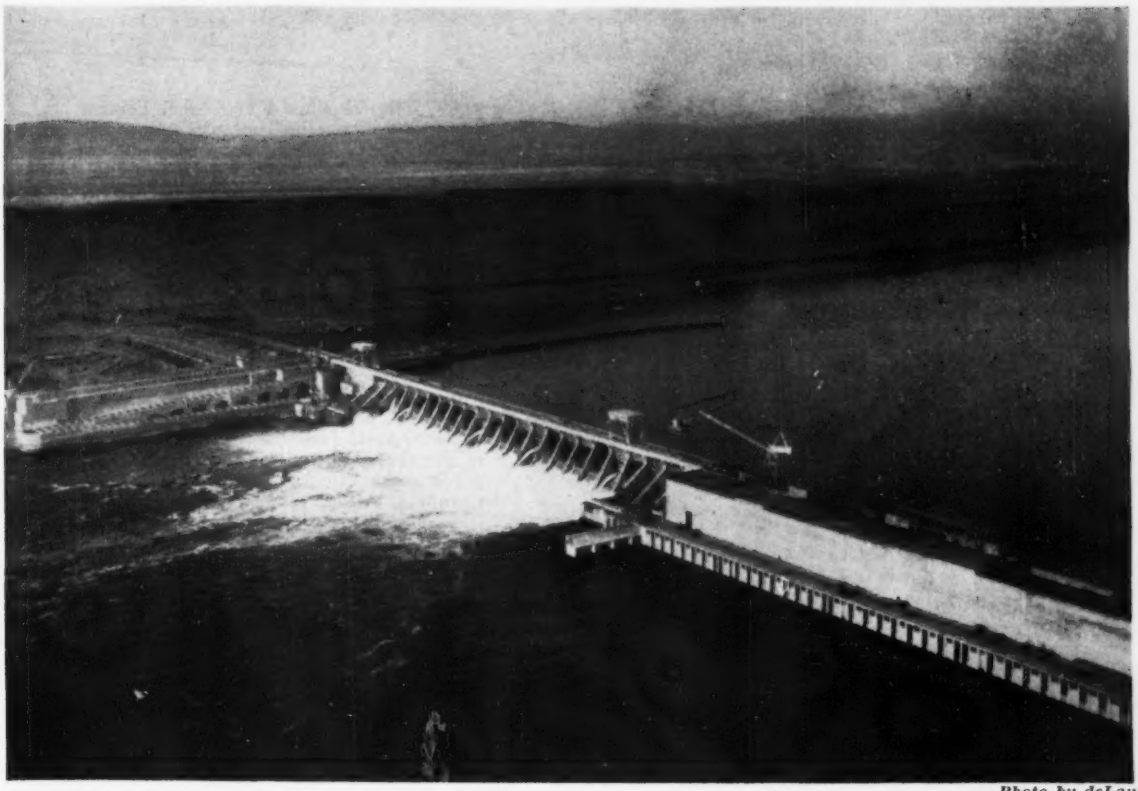


Photo by deLay

WORK ON McNARY DAM on the Columbia River has advanced to the point where the power plant (right) should be producing power in December.

How will federal hydro policy affect Pacific Northwest?

L. L. Wise
Associate Editor

What does the new federal power policy as recently promulgated by Interior Department officials mean in so far as construction of hydroelectric facilities in the Pacific Northwest is concerned?

This is an important question, not only for the region but for the country as a whole. And there are indications, even at this early date, of what the ultimate answer will be. This much, at least, is clear: The new policy does not take the federal government out of the hydro-power construction picture. The policy statement itself (ENR Aug. 27, p. 23) emphasizes local responsibility for meeting power needs. But it recognizes the necessity for federal construction of works that, "because of size or complexity, are beyond the means of local public or private enterprise."

• **Power demand proved**—In the eyes of the area's industrialists and utility executives there is no question as to the need for continuing expansion of hydroelectric capacity in the Pacific Northwest. Before the new policy was announced, the federal program for the Pacific Northwest (Corps of Engineers as well as Department of the Interior) included the projects listed in the table on page 36. Population growth alone would require much of the proposed work shown, being 33% during the 1940-50 decade as compared with a 14% national average. And these new demands can be met only by new hydro capacity because steam power is not economical in the Pacific Northwest because of a lack of coal and oil resources.

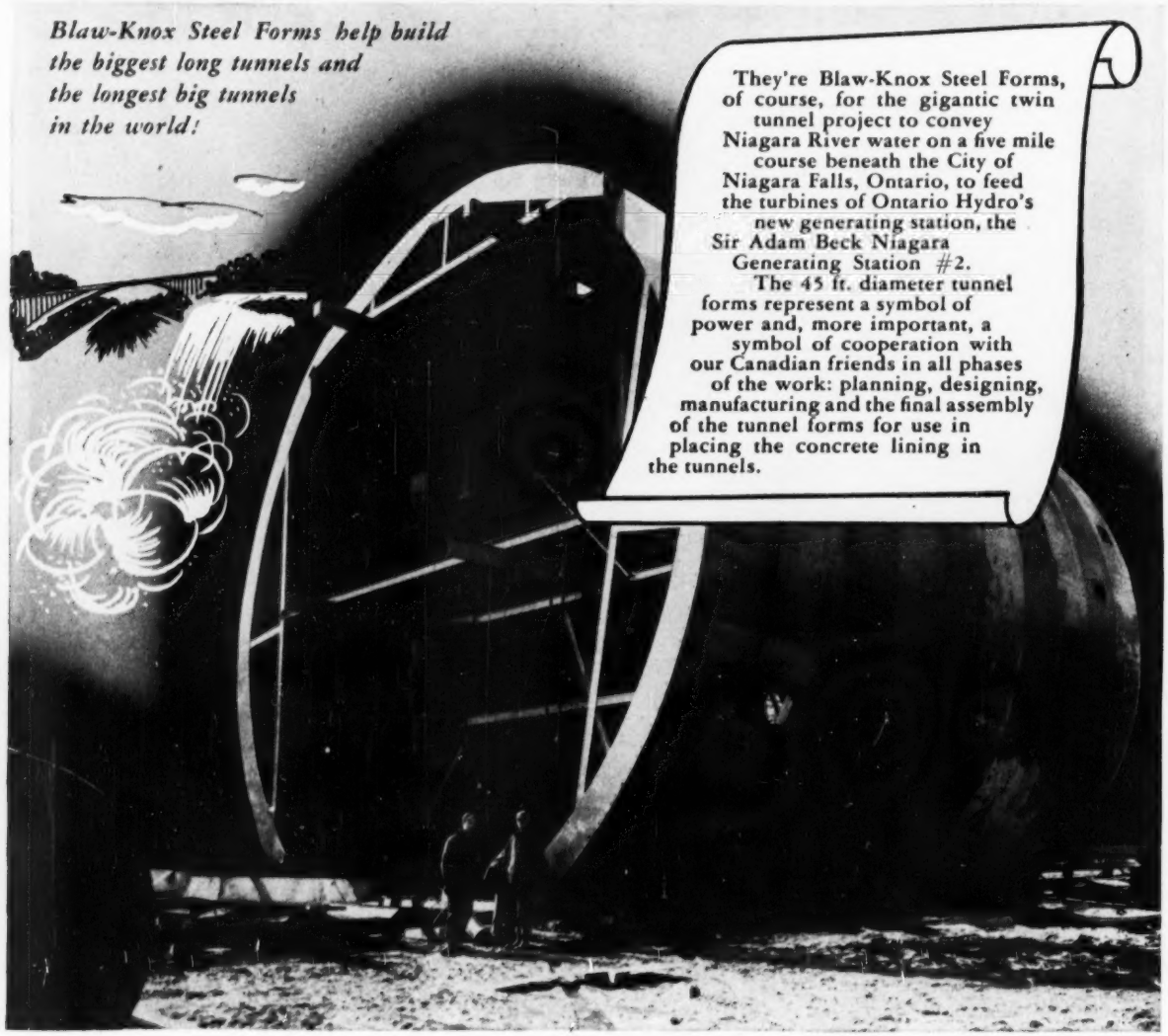
But the greatest pressure for expansion comes from the electro-chemical process industries. In the last decade and a half, cheap power attracted to the area producers of aluminum, chlorine and other similar commodities. Alcoa, Reynolds and Kaiser all have extensive aluminum installations. New producers have potlines under construction—Anaconda near Kalispell, Mont., and Harvey at The Dalles, Ore. Both Dow Chemical and Penn Salt produce chlorine in the Pacific Northwest.

All of these producers and others have contracts for power that include some firm energy and some interruptible power. All of them either would like to expand their facilities or be assured of production by being on a 100% firm-power basis. Thus, there is pressure for new works because even with higher construction costs and less desirable sites, new power still can be produced for 3 mills per kwhr. And the pressure comes from prospective users as well as such established firms as those mentioned.

Stangely enough, these industrial users, who provide the greatest pressure for new power projects, stand to gain the least from the change in federal power policy. Hereafter, in selling federal power, emphasis will be given first to public bodies and cooperatives. Next privately owned public utilities serving domestic and rural customers will be supplied. Presumably, industrial customers of utilities come next. But the policy prohibits sale direct to consumers under ordinary circumstances. This is contrary to past policies whereby the Bonneville Power Administration had direct contracts with some of the large industrial users in this area.

This does not mean that industrial

Blaw-Knox Steel Forms help build the biggest long tunnels and the longest big tunnels in the world!



They're Blaw-Knox Steel Forms, of course, for the gigantic twin tunnel project to convey Niagara River water on a five mile course beneath the City of Niagara Falls, Ontario, to feed the turbines of Ontario Hydro's new generating station, the Sir Adam Beck Niagara Generating Station #2.

The 45 ft. diameter tunnel forms represent a symbol of power and, more important, a symbol of cooperation with our Canadian friends in all phases of the work: planning, designing, manufacturing and the final assembly of the tunnel forms for use in placing the concrete lining in the tunnels.

. . . . for every concrete placing job use BLAW-KNOX STEEL FORMS!

WHATEVER your concreting job . . . big tunnels, dams, bridges, or concrete installations of any kind . . . follow the lead of the builders of the Sir Adam Beck Niagara project. Call in Blaw-Knox engineers for the expert consultation service that assures efficient forming methods and results in close scheduling and fast progress in the concrete placing.

Blaw-Knox engineers, with over 40 years experience in solving tough or unusual concreting problems, get right to the heart of your problem, find the simplest, most economical method of solving it, and recommend the Blaw-Knox Steel Forms best suited for the job.

Get complete details today about the advantages of Blaw-Knox consultation service in the *preliminary* planning stage. Send for Bulletin 2035 today, or if you want detailed information fast, wire or phone.

BLAW-KNOX

BLAW-KNOX COMPANY
BLAW-KNOX EQUIPMENT DIVISION
Farmers Bank Bldg.
PITTSBURGH 22, PA.
Offices in Principal Cities

BLAW-KNOX

consumers won't get power. But it does mean that others get first preference. And that just heightens the demand for construction of more capacity.

• **Started by Bonneville**—Construction of the Bonneville Dam in the Thirties started the large federal program in that area. Grand Coulee followed almost immediately and, with the outbreak of World War II, the rate of expansion of its power plants was stepped up. Hence, by the end of the war it was thought that there would be a large power surplus. So no new work was started.

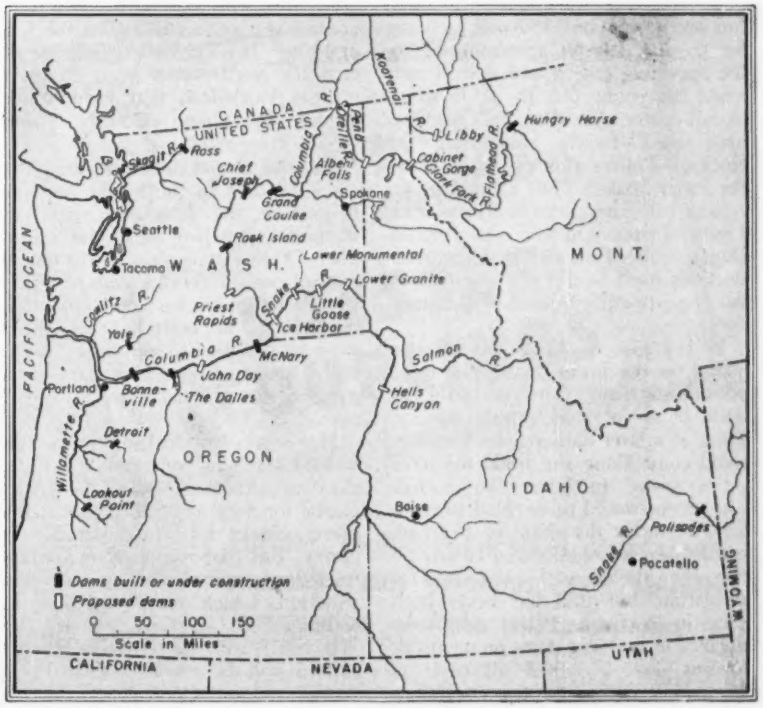
However, it soon was evident that more power was needed. As a result, construction of Hungry Horse and McNary dams on expedited time schedules was started in 1947. But before either could deliver power there were brown-out threats and 10% load cutbacks—mostly during drought periods.

The works now under construction, if kept on schedule, will provide capacity to meet demands with small surpluses for the next four or five years. The power plant at McNary Dam will be on the line in December and progress at Chief Joseph is such that generation of power there almost surely will be on schedule. On the other hand, appropriations for The Dalles were drastically cut this year. Of the $59 million requested, only $32 million was granted. Power still could be delivered in 1957, as planned originally, provided appropriations of $75 million a year are made for each of the next three years. It appears doubtful that Congress will grant that much.

If work on The Dalles power plant is delayed, the Pacific Northwest by 1958 will be faced with a tight power problem much like the situation in 1952. No large industrial expansion will be possible and drought conditions could close down plants, throwing thousands out of work. And the situation will get worse year by year if there are no new starts.

Thus, in so far as The Dalles is concerned, unless there is effective local clamor for substantial congressional appropriations, you can expect the project to be on the line in 1959 instead of 1957.

• **Need for upstream storage**—Cheapest power comes from run-of-the-river plants such as Bonneville, The Dalles, McNary, Chief Joseph and the projects proposed for the lower Snake River. But storage in the upper parts of the river system is needed to permit such plants to produce larger quantities of firm power. Grand Coulee and Hungry Horse firm up the generating capacity of all the Columbia River plants.



COLUMBIA RIVER SYSTEM with 30 million kilowatts of undeveloped capacity offers more potential for inexpensive new power than any other U. S. watershed. Many works long planned for federal construction now may be developed by local agencies.

Libby Dam on the Kootenai River in northwestern Montana will provide extensive storage, which makes it much more valuable from a power standpoint than the installed capacity at the plant would indicate. The same may be said of the federal Hells Canyon proposal.

Hungry Horse and Libby both are relatively far from the major industrial load centers in Portland, Seattle and Spokane. But powerwise their value lies in the greater amount of firm power that they make possible at main stream plants closer to the load centers.

• **Next federal work?**—Logically, the next federal job to be started should be Libby Dam. It would provide large quantities of additional firm power at downstream plants. But Libby is located far from those plants, and the Kootenai rises in Canada, flows into the U. S., and then back into Canada where it joins the Columbia. The projected reservoir would back water into Canada, which means that an international agreement must be negotiated before work can go ahead. And progress on the negotiations has been slow—so much so that there has been some talk of moving the location or reducing the scope so that all of the reservoir would be in the U. S.

• **Joint federal-private work**—It has been suggested that federal participation in some of these projects could be reduced by having the federal government pay the costs allocated to navigation, flood control or conservation and that local utilities—either publicly or privately owned—pay all costs allocated to power. The Libby project appears to fall into that class. Presumably the dam would have to be built by the federal government because of the international character of the reservoir, but the power plant could be built by the Montana Power Co. That company also would be required to pay dam and reservoir costs allocated to power.

• **Lower Snake River dams**—Another candidate for early construction is Ice Harbor Dam on the Snake River near its confluence with the Columbia. In fact, Ice Harbor has been on the verge of construction several times, only to be blocked by last-minute appropriation cuts. The proposed program for the Snake River (see table) has other dams on the lower river (Lower Monumental, Little Goose and Lower Granite) following Ice Harbor in close order.

Construction by local agencies could be applied to these lower Snake River dams. They are the least "complex" of any of the proposed federal projects. The only complicating fac-

tors are navigation locks and facilities for passing salmon upstream during the spawning season and downstream when the young fish are ready to go to salt water. To date, fish interests have been largely responsible for blocking construction of any dam on the lower Snake. They claim that no system will pass as many fish as does a natural river. On this issue Interior Department's Fish and Wildlife Service finds itself in direct opposition to the Department's Bureau of Reclamation.

In the case of the run-of-the-river plants on the lower Snake, the dam, powerhouse and fishways could be built by a local or private agency. Then at a later date a federal agency could come along and build the navigation works. In theory, the non-federal agency would be entitled to reimbursement for the share of the dam and fishway costs allocated to navigation when the channel is improved for navigation, but that has never been done in the past. Power companies engaged in building dams on navigable streams have absorbed all costs of the project except for the navigation locks.

Where flood control enters the picture, the operation is not quite that easy. Take Priest Rapids Dam for example. This project on the Columbia above McNary Dam includes flood-control storage, according to the federal plan. It is currently being considered for construction by a group of utilities located in that vicinity and headed by Grand County Public Utility District.

But the district does not propose to carry the dam to the height required to provide the 2,100,000 acre-ft of flood storage called for in the federal plan. This means that if the flood-control possibility of a dam at Priest Rapids is not to be lost completely, the dam to be built by the district must be designed to permit its height to be increased at a later date. Presumably that will add materially to the cost.

Here again, an ideal solution would be for the federal government to build the dam initially to the full height required for flood control, charging the power district for cost chargeable to power. But that would mean waiting for federal appropriation to start construction, which might be slow in coming.

It could well be, however, that a pattern will be established at Priest Rapids. Grant County can be expected to develop rapidly, as it includes areas now being irrigated by water pumped from behind Grand Coulee Dam. And as public utility districts are strong in rural areas in the state of Washington, there is a good chance that the Grant County District may be able to finance power development at Priest Rapids.

John Day Dam, on the Columbia between McNary and The Dalles, has long been considered the last of the currently proposed federal jobs that should be built, largely because of high costs. Hearings held on this project late in September, however, have caused speculation that federal construction is likely soon. If so, this is almost surely a case where the federal government will do the whole job because the relatively high cost of the power does not make it attractive to local utility districts or privately owned utilities.

Hells Canyon has been the most publicized proposed project, because of conflicting plans for developing the power resources of the site. The Bureau of Reclamation (before the change in administration) proposed a costly high dam and considerable storage, whereas the Idaho Power Company proposed three low dams at much less cost but generating somewhat less power and providing no storage.

Even before the new federal power policy was announced in detail, Interior Secretary Douglas McKay announced that his department would not oppose the Idaho Power Company's application for a Federal Power

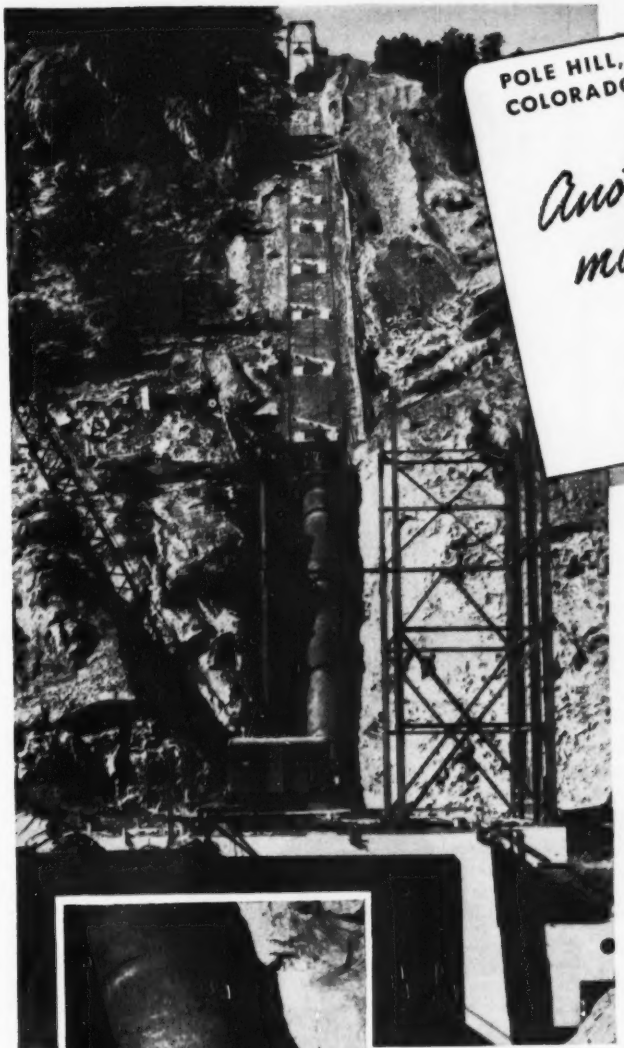
MAJOR FEDERAL POWER PROJECTS IN PACIFIC NORTHWEST*

	Stream	Plant Capacity (kw)	Average Prime Power Capability (kw)	Usable Storage (acre-ft)	Date in Service**
In Service					
Bonneville	Columbia	518,400	494,000	.....	1938
Grand Coulee	Columbia	1,944,000	1,710,000	5,118,000	1941
Hungry Horse	S. Fk. Flathead	285,000	120,000	2,980,000	1952
Detroit	N. Santiam	100,000	34,000	351,000	1953
Under Construction					
McNary	Columbia	980,000	653,000	.....	1953
Lookout Point	M. Fk. Willamette	114,000	27,000	368,000	1954
Chief Joseph	Columbia	1,152,000	859,000	.....	1955
Palisades	Snake	114,000	34,000	1,200,000	1956
The Dalles	Columbia	1,119,000	722,000	.....	1957
Authorized					
Ice Harbor	Snake	260,000	195,000	.....	1957
Libby	Kootenai	660,000	298,000	6,483,000	1959
Lower Monumental	Snake	240,000	184,000	.....	1960
Little Goose	Snake	260,000	199,000	.....	1961
Lower Granite	Snake	220,000	163,000	.....	1962
Priest Rapids	Columbia	1,219,000	779,000	2,100,000***	1962
John Day	Columbia	1,190,000	757,000	2,000,000***	1964
Recommended					
Hells Canyon	Snake	800,000	668,000	3,880,000	1958

*More than 100,000 kw installed capacity.

**Dates are for initial power generation. For plants not yet in service, dates are those jointly recommended as desirable by the Bureau of Reclamation, Corps of Engineers and Bonneville Power Administration.

***Flood control storage only.



POLE HILL, COLORADO

Another Penstock job made easier with DRESSER COUPLINGS

Lighter, high-tensile steel pipe saves tonnage, cuts shipping costs, speeds installation of Pole Hill penstock.

A part of the Colorado Big Thompson Project, the 98" Pole Hill penstock carries water to a power house near Loveland, Colorado. The bed for this penstock is on a 34° slope, much of which was cut out of solid rock. To make this difficult construction job easier and more economical, U. S. Bureau of Reclamation engineers specified a Dresser-Coupled installation.

Dresser Couplings permit the use of high-tensile steel pipe. Thinner pipe walls *save up to 25% of total penstock weight.* Longer pipe lengths mean fewer joints and fewer anchors to prevent progressive creep. High-tensile steel pipe can be Dresser-Coupled with a minimum of time, skill and heavy equipment. The "give and take" in Dresser Couplings eliminates all problems of expansion and contraction. Permanent, bottle-tight joints are assured.

Weeks, sometimes months, are saved in Dresser-Coupled penstock installations. The net result—*earlier revenue* from plant operation, *continued revenue* from a permanently tight, maintenance-free line.

Above—Requiring no special supports, this portion of penstock will be back-filled after field coating is applied.

Left—98" O.D. Dresser Coupling nearest powerhouse . . . shop-tested to withstand 675# psi.

BE SURE you get a *better, faster* penstock installation. Put high-tensile steel pipe and Dresser Couplings in *your* specifications.

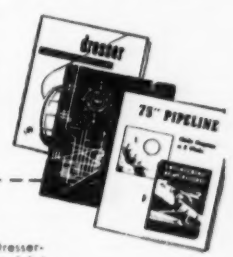
DRESSER®

COUPLINGS

Dresser Manufacturing Division
(One of the Dresser Industries)
319 Fisher Avenue, Bradford, Pennsylvania

FREE ENGINEERING DATA

Mail this coupon for interesting and informative engineering data on diversified Dresser installations. It's file material that will be a big help next time you're designing a pipeline.



DRESSER MANUFACTURING DIVISION
319 Fisher Ave., Bradford, Pa.

Please send me your latest "Report of Dresser-Coupled Lines", and copies of your Expansion Joint and Style 38 Catalogs.

Name_____
Title_____
Company_____
Street_____
City_____ Zone_____ State_____

PLASTIMENT*
CONCRETE Ddensifier

CONTROLS SET AND REDUCES WATER CONTENT WITHOUT INCREASING AIR CONTENT FOR

- **GREATER UNIFORMITY**
- **CRACK RESISTANCE**
- **WATER-TIGHTNESS**
- **SURFACE HARDNESS**

*Plastiment consistently produces higher structural values in concrete because it limits and controls the growth of water-consuming cement gels during mixing and placing of concrete. This action reduces the water-cement ratio and retards the set of **all** concretes, plain or air-entrained, regardless of type of cement or aggregate. Uniformity of set and water content (the governing factors of uniform concrete quality) are made possible by changing Plastiment proportions with concrete-placing-temperatures and field conditions.

Controlled set and uniformly low water content — exclusive with Plastiment — means less segregation, shrinkage, cold joints and other defects, greater uniformity and resistance to abrasion, cracking and leakage.

Write for your copy of "Plastiment, Concrete Densifier." For specific information on how Plastiment can benefit your own concrete projects, check with our engineering staff today.

SIKA CHEMICAL CORPORATION

PASSAIC, NEW JERSEY

BRANCH OFFICES: PITTSBURGH, SALT LAKE CITY, MONTREAL, PANAMA, CHICAGO • DEALERS IN PRICIPAL CITIES

Field installations and laboratory tests prove Plastiment's beneficial influence on uniformity, impermeability and resistance to cracking and abrasion.

Plastiment-concrete has been used in many of the world's outstanding projects — floating concrete drydocks, U. S. Navy — concrete ships and barges, U. S. Maritime Commission — Pier 57, New York — the world's largest prestressed concrete bridges and tanks — Metropolitan housing projects, Los Angeles and San Francisco — Gateway Center Buildings, Pittsburgh — and many others.

CHIEF JOSEPH DAM will add one million kilowatts to the power supply of the Pacific Northwest in 1955 from the plant here shown under construction at the left center. The main dam is in the foreground.

Commission permit. Opposition has come from public power advocates fighting a last ditch stand against private developments.

It is highly probable that the Idaho Power Co. will get its sought after permit. If it does not, and if the federal government decides to build the high dam—because its high cost and storage possibilities make private construction impracticable—many local people believe that its construction can well be postponed in favor of other more economical projects.

• **In summary**—Here is what may happen under the changed federal policy:

• Libby Dam built by the federal government with the powerhouse built by a local or private agency.

• Priest Rapids Dam, built by a local utility district, with or without provision for adding to the dam at some later date for flood storage.

• Ice Harbor Dam, built by a local agency with navigation facilities built later by the federal government.

• Hells Canyon, developed by a private power company to an entirely different plan than previously contemplated in federal proposals.

Each of these different construction possibilities, in any event, seems to fit the new federal formula. But, where government money is involved, there must first be a conclusive demonstration by local interests of the need for federal work. Without a doubt, such demonstrations will be forthcoming in the Pacific Northwest. Those projects where federal participation seems necessary are too vital for the future wellbeing of the area to lie undeveloped for long.

In the foregoing, little distinction has been made between projects planned by the Corps of Engineers or the Bureau of Reclamation. In fact, all but four (Grand Coulee, Hungry Horse, Palisades and Hells Canyon) are projects sponsored by the Corps of Engineers. It can be assumed safely that the power policy enunciated by the Interior Department also will apply to projects of the Corps of Engineers because the policy appears to be that of the Eisenhower Administration, not just of the Interior Department. Certainly it will apply to the sale of power developed from C-of-E projects since that is handled by Interior.

• **Other agencies**—Emphasis in the foregoing on the federal power program is not meant to imply that other agencies, both public and private, have not been actively developing power in the region of the Columbia River watershed.

Rock Island Dam—above Priest Rapids and below Chief Joseph—was originally built by the now nearly defunct Puget Sound Power & Light Co. and recently has been expanded by Chelan County Public Utility District.

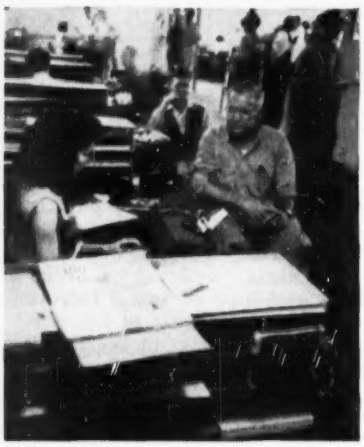
By far the most active local publicly owned utilities are those of Seattle and Tacoma. Seattle will complete work this year on its Ross power plant that will bring its Skagit River capacity to 524,400 kw.

Tacoma has two proposed projects on the Cowlitz River that would add 460,000 kw by 1955. But as of this writing, these works have been blocked by fishing interests. Tacoma may be forced to resort to less economical thermal power to amplify its system.

• **Private utilities**—Privately financed construction programs have been active recently too. Idaho Power Co. has built works on the Snake River in the Boise area. Washington Water Power Co. has completed a 200,000-kw installation at Cabinet Gorge in northern Idaho and is planning more work at nearby Noxon Rapids. Pacific Power & Light Co. has built the 108,000-kw Yale Project near Portland. Both the Montana Power Co. and the California-Oregon Power Co. have lesser works now under construction in the Columbia River drainage area.

The new federal power policy indicates that these local agencies—both publicly and privately owned—will play a larger part in future developments. And that may even extend to taking over some works which have long been planned for federal construction.

ENR photos by Compt



WORKERS, all hired through Kiewit's office, represent every state in the union, because few skills are available in this rural area. Present average 17,000 employment will swell to 26,000 when jobs hit peak a year from now.

This is the Portsmouth Area

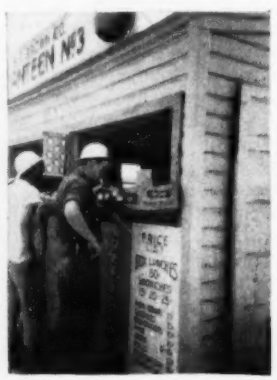
Midway between the cities of Portsmouth and Chillicothe in southern Ohio, a gravel road turns east from route 23 and leads to the well-guarded main gate of the Portsmouth Area atomic plant site.

Behind that gate, on 3,700 acres of rolling land, the U. S. Atomic Energy Commission is directing the construction of a $1.2-billion gaseous diffusion plant. The product: Fissionable isotope U-235, basic material for the A-bomb and fuel for atomic power.

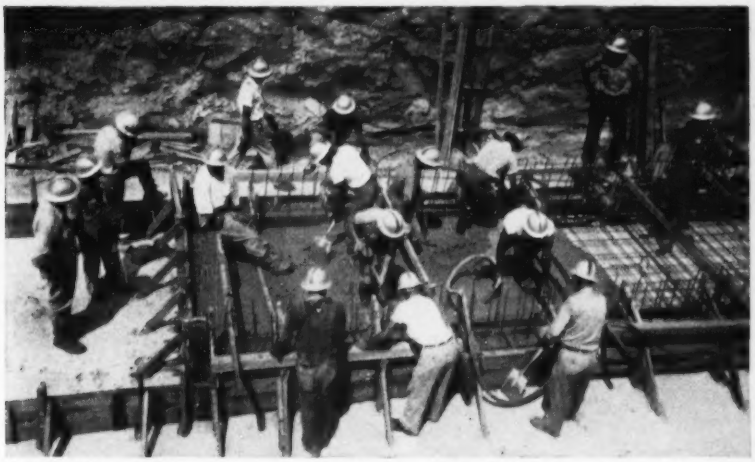
Chief reasons for choosing the Portsmouth Area were its strategic features and its great potential in electric power. To supply that power 15 Ohio companies joined to form OVEC—Ohio Valley Electric Corp.—and guaranteed to supply AEC with the necessary kilowatts. That has meant construction of two new generating plants—one at Gallipolis, Ohio; another at Madison, Ind.

To build the installation—itself an adventure into scientific unknowns, AEC hired Peter Kiewit and Son Co., of Omaha, as prime contractor. Under the Kiewit organization, over a hundred subcontractors are working at top speed to put the mammoth plant into full production by 1956.

Last summer ENR visited Portsmouth to see this construction giant. The exclusive photographic report on these pages is the result. While little can be said of how and what is being done, these pictures provide an impression of the vast, yet concentrated, job of building an A-plant.



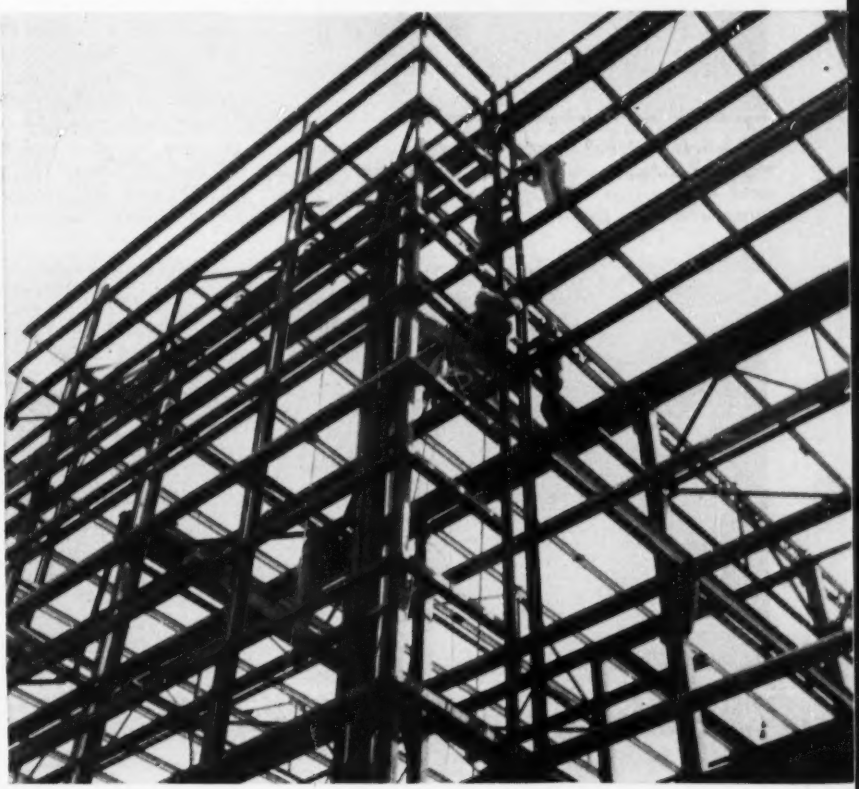
BIG On one segment of 3,700-acre site under excavation a constant stream of scrapers and tractors works with tight precision. Excavation at A-plant will total about 3.3-million cu yd. Plant floor space will occupy 222 acres.



CONCENTRATED Construction work on actual diffusion plant (above and below right) moves at accelerated pace. No similar plant has ever been contemplated. Problems encountered called for excursions into the unknown far beyond accepted methods of design and construction. Development of some materials and equipment was not completed until after work had started.

AEC MANAGER Kenneth Dunbar (center) with top aides directs Portsmouth Area, works closely with Kiewit. Plant is designed to go into service in segments with completed units under Goodyear Atomic Corp., operating contractor.

Continued on next page



TRAILER CAMPS dot landscape, house majority of construction workers. Every possible housing facility is being utilized, and construction of several apartment houses is being rushed, but many workers, with Puducah experience, prefer homes on wheels.

RETAIL BUSINESS is reflected by K. B. Ledman, president of Portsmouth National Bank, who reports an investment increase from $9.7 to $11.6 million. Sees bright future with other industries locating in the general area.

PORTSMOUTH AREA *continued*

An A-plant brings prosperity, problems and a new industrial frontier to southern Ohio

When the AEC chose Portsmouth as the site for its newest plant the area was both blessed and burdened—with prosperity and a unique set of problems that have become an accepted offshoot of such sprawling defense installations.

While this primarily agricultural area met the requisites of AEC planners, and the local citizens welcomed the influx of construction workers, the size, nature and accelerated completion schedule of the A-plant forced a rapid urbanization that has thrown the local social and economic life out of kilter. A host of new problems has arisen to plague community leaders. And the old problems have become further aggravated. Farmers, however, have learned that renting land for trailer camps and roadside stands brings more money than crops. Local storekeepers have watched retail sales jump 40%, and banks are looking for larger quarters to house their business. But in the wake of this prosperity has come an army of job seekers, promoters and opportunists, all intent on siphoning off some of the big payrolls that flow from the project. Some local people have suffered from the new higher cost of living, others long for the quiet, easy-going past, and an occasional skeptic warns of the bust to follow the boom. Still, most local citizens are convinced southern Ohio has come into its own as an industrial center, capitalizing on its natural resources, increased power and expansion potential.

THREE RAILROADS serve Portsmouth area; Norfolk and Western, Chesapeake and Ohio, and Detroit, Toledo and Ironton. N&W and C&O have already built this spur into A-plant site. (For highway construction at Portsmouth see ENR Sept. 3, p. 26.)

PERMANENT addition to landscape is this equipment distributor who expects other industries to see region's potential.

NEW FAMILIES with young children have greatly overtaxed school and health facilities. There were 4,000 school children in Pike County last year. This fall up to 8,000 were expected. For adequate construction money citizens must seek federal aid.

QUICK to take advantage of the boom were these small entrepreneurs. The Atomic Store, just outside the A-plant main gate, is close to several trailer camps. The motel (left background), open but still finishing up construction, is in nearby Piketon.

here is **Packaged**

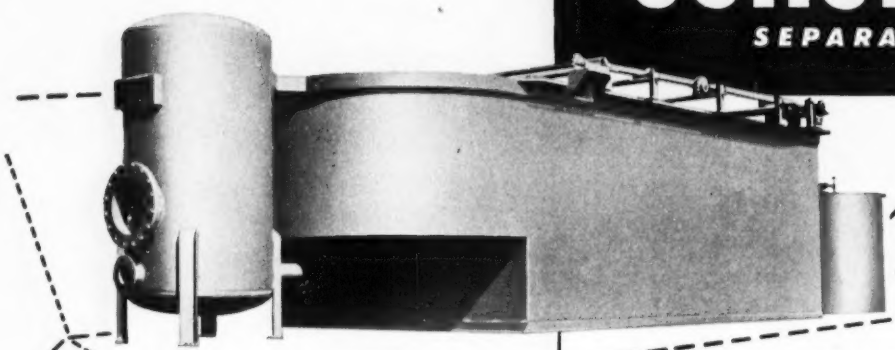
INDUSTRIAL WASTE WATER TREATMENT

to meet pollution regulations

BULKLEY-DUNTON

colloidair

SEPARATORS



720,000 G.P.D. COLLOIDAIR for prefabricated delivery

Installations are also designed and supplied on a "turn-key" basis

Meets government specifications for aircraft maintenance wastes treatment facilities

This equipment meets state, regional, and local disposal requirements with...

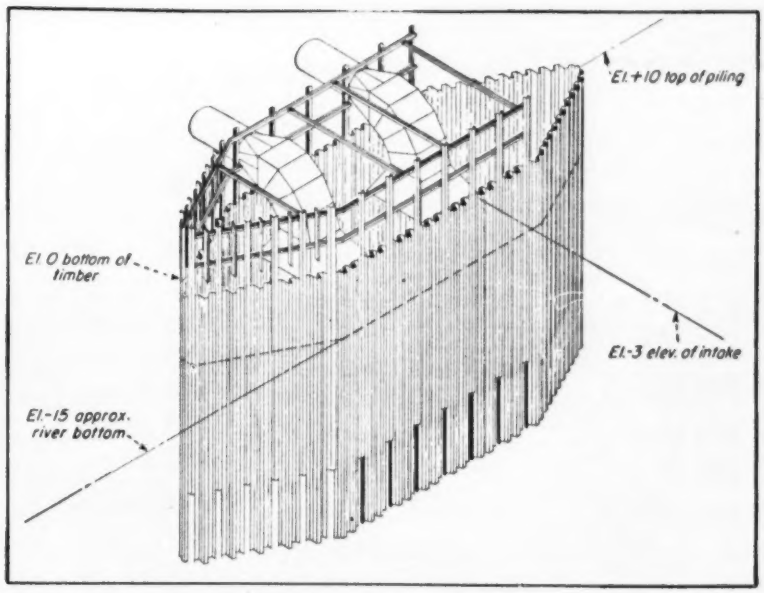
HIGH EFFICIENCIES • LOW SPACE REQUIREMENTS • PROVEN PERFORMANCE

Write for details today!

BULKLEY-DUNTON PROCESSES, INC.

Dept. F-1, 295 Madison Ave., New York 17, N. Y.

Pacific Coast: Dept. F-1, Security Bldg., Pasadena, Calif.



River intake for industrial water supply . . .

To tap flood flows only

Structure designed to take water only from near the surface of turbid Texas stream

A "skimmer" intake, designed to pull water from the top few feet of the Brazos River is being built by the Dow Chemical Company to fill a new 19,000-acre-ft storage unit opposite Brazoria, Tex.

Water will be pumped from the river only during high-stage periods—85 to 90 days in the average year. The pair of 90,000-gpm pumps to be stationed on the river bank will take water normally wasted to the Gulf of Mexico; there are no other withdrawals in the remaining 24 miles of river downstream to the Gulf.

Working under permit of the Texas State Board of Water Engineers, Dow Chemical hopes to complete its intake and reservoir project by next summer. However, it may be 1955 before the dike-enclosed reservoir can be filled and feeding water via Buffalo Camp Bayou to the fresh water canals of Dow's vast $300 million plant at Freeport, on the Gulf.

• **Only top quality**—The sheetpile-and-timber-enclosed intake is intended to take only the best water from the Brazos through its sheetmetal suction bells. Located only 3 ft below the normal surface level of the water, the suction bells will avoid picking up the heavy bedload, transported by the stream especially in periods of above normal stage. Putting the level of the entrance above the bed load zone is expected to prevent heavy sediment from being pumped into the reservoir.

The bottom of the Brazos River at this point is generally below the level of the Gulf of Mexico, so salt water can flow upstream as a wedge along the bottom during low stage periods. Undesirable concentrations of chlorides exist at the intake location at low stage. Water will be taken only at times of high stage, when the salt wedge should be pushed downstream; and only fairly near the surface, where the lighter, fresh water should be flowing.

The intake structure (pictured above) is positioned and shaped for minimum erosion effect. Actually curved ends on the rectangular structure would be better, but straight lines were used to simplify construction.

Every fourth sheetpile around the upstream portion of the intake structure will have its top elevation at +10. These extensions will form posts for a timber fender system to deflect floating debris, while also accommodating horizontal bracing.

Hydraulic requirements of low head loss and minimum turbulence are met by the intake. Head loss due to flow over and through the sheet-piling is expected to be negligible for the anticipated pumping range. The intake structure is sized to minimize turbulence within—around the suction bells.

• **Goes to storage**—From the intake, water is to be pumped at rates up to 194 mgd through two buried 66-in. concrete pipelines, 2,900 ft to the storage reservoir. This reservoir will be a 1,900-acre, levee-enclosed area on the east bank of the Brazos.

Soil studies showed foundation material for the levee to be consolidated clay from 10 to 20 ft thick. Its strength exceeds stresses computed to be put on it by the levees. Surface soils due for use in the levee are stable in place but present certain problems when disturbed. In the levees they will be covered with a protective blanket of select soil for moisture control to reduce shrinkage and swell. Levee material will be compacted to 95% of standard Proctor density; side slope will be one on three. Height will average 17 ft.

Under-seepage has been rather thoroughly investigated. At spots where levee material has been excavated just outside the levee line, reducing thickness of the impervious mantle outside the reservoir to such an extent that seepage might lift the residual mantle, sand drains are being used. The escape gradient through the various soils and out through the sand drains is such that quantity of water escaping will be relatively insignificant.

Inside the reservoir, trees will be left standing as protection against wind and wave effect injurious to the levees.

• **Then to distribution**—Three discharge siphons will take water over the levee into Buffalo Camp Bayou—the route to the Dow plant. At the point where this watercourse comes closest to Dow's existing system of fresh water distribution canals, a short connecting channel will be dug. A weir in Buffalo Camp Bayou just downstream from this channel will prevent salt water intrusion. It is to be gravity flow—gate-controlled—from reservoir to the chemical plant.

C. C. Armstrong, utilities project manager in Dow's engineering department has supervised the Brazoria Reservoir project since its inception and provided most of the information for this article. Lockwood and Andrews, of Houston, are consulting engineers on the project and Prof. Spencer Buchanan of Texas A.&M. has been consultant on soils and foundation problems.

Telespen Construction Co. is building the pumping station and power substation. George Construction Co. has the contract for the intake and lines from the intake to the storage basin. Gulf Bitulithic Co. is contractor on the levee and discharge works. All are Houston firms.

The Newark Housing Authority Project will provide 630 apartments in nine 8-story and three 3-story buildings. Architects: Kruger and Fava, Newark, N. J. Structural engineer: J. Di Stasio and Co., New York City. Contractor: Terminal Construction Corp., Wood Ridge, N. J.

Concrete Frames and Floors

. . . QUALITY CONSTRUCTION FOR MODERN BUILDINGS

By achieving important savings in time, money and materials, reinforced concrete frame and floor construction has been selected on an increasing number of projects across the nation. Another example is the Newark Housing Authority Project, shown above.

Reinforced concrete allows frame and floor construction to proceed simultaneously. This means plumbers, electricians, masons and other tradesmen can do their jobs as the structural work goes ahead. The saving of time is considerable.

Competitive bids and cost analyses show that concrete frame and floor construction can save up to 40%. Its moderate first cost, + low maintenance cost ÷ long life = true ***low-annual-cost*** service.

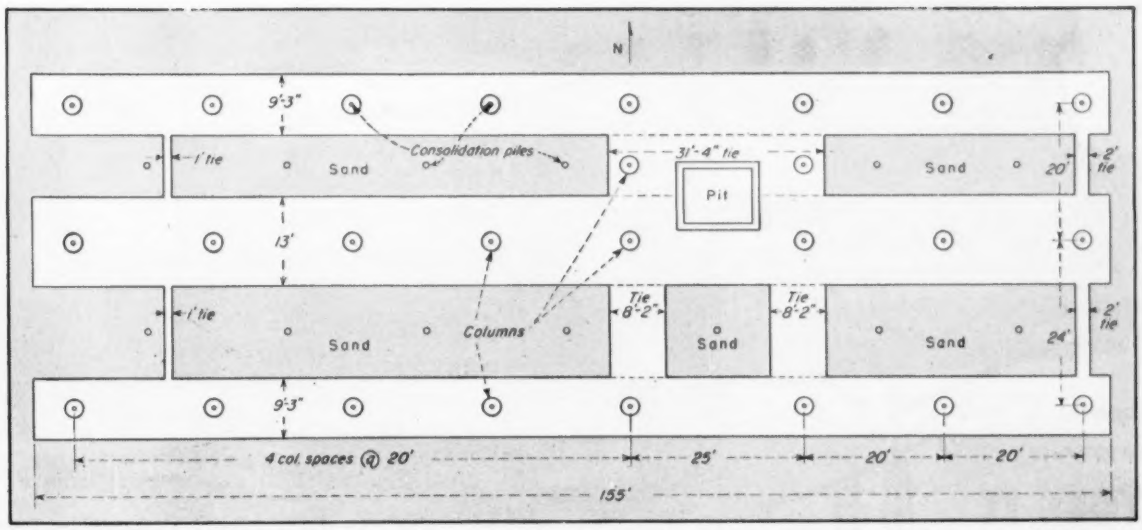
Durable, sturdy, firesafe concrete frame and floor construction is ideal for schools, hospitals, factories, apartment or office buildings.

Write for free bulletins, distributed only in United States and Canada.

PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

DEPT. A11c-17, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS



CONTINUOUS FOOTINGS, 2 ft 8 in. deep, are poured integrally with ties. Sand is compacted with timber consolidation piles centered beneath columns and between footings.

Earthquake-resistant tower features floating foundation, heat-pump

Three massive continuous concrete footings, floating on compacted sand, will support the 26 columns of a 12-story tower going up in Albuquerque, N. M. The 155x51-ft tower is part of a $2.2-million reinforced concrete, earthquake-resistant office and store building.

Sand and gravel reaching a depth of 70 ft below grade predicated the use of the floating foundation for the glass and aluminum-walled tower. Ties, connecting the three continuous footings, were poured to about the same depth as the beams. These ties permit the whole tower foundation to move as a unit under lateral earthquake force.

• **Problem in heating**—As interesting as the foundations is the method adopted for heating and cooling the structure. Exposed to the bright New Mexico sun, the all-glass south wall of the tower posed a problem in heat control. When the sun is high, even though the outside temperature may be as low as 35 F, cooling will be needed on the south side of the tower, while the rest of the building will require heat.

Water, of different temperatures at two levels in the subsoil made feasible a heat-pump installation for heating and cooling. The cooling and heating cycles of the heat pump's refrigeration plant will draw on water from a shallow well 70 ft deep with water at 67 F, and a 260-ft deep well with 69 F water. The deep well is separated from the shallower well by an impervious layer of rock and shale.

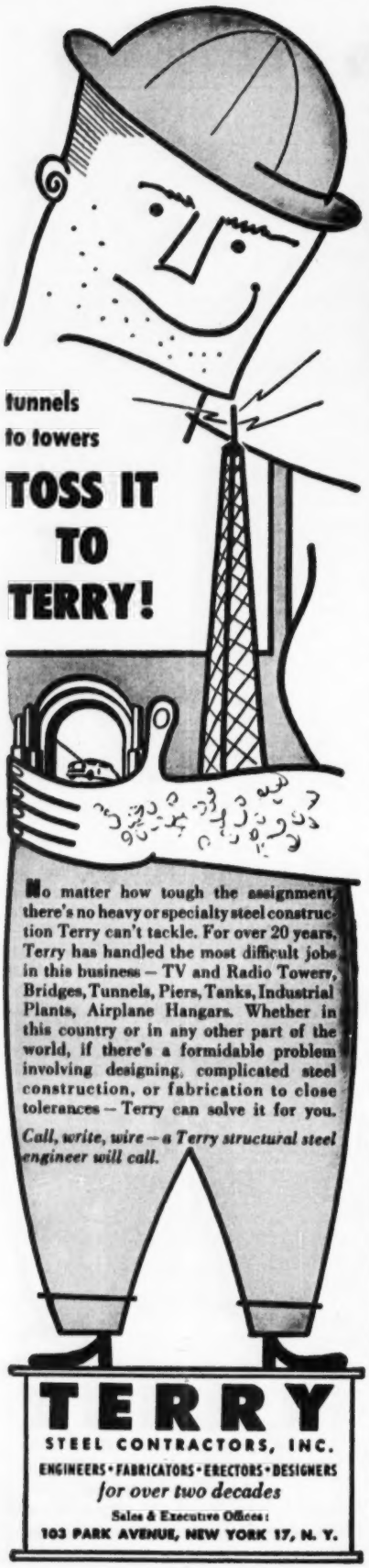
• **Consolidated sand**—For the foundations, sand and gravel directly under the tower was consolidated with 43 timber piles, 30 ft long, driven so that tops of piles are 18 in. beneath the bottom of the 2-ft 8-in. thick footings. One pile was centered under each of the 26 tower columns.

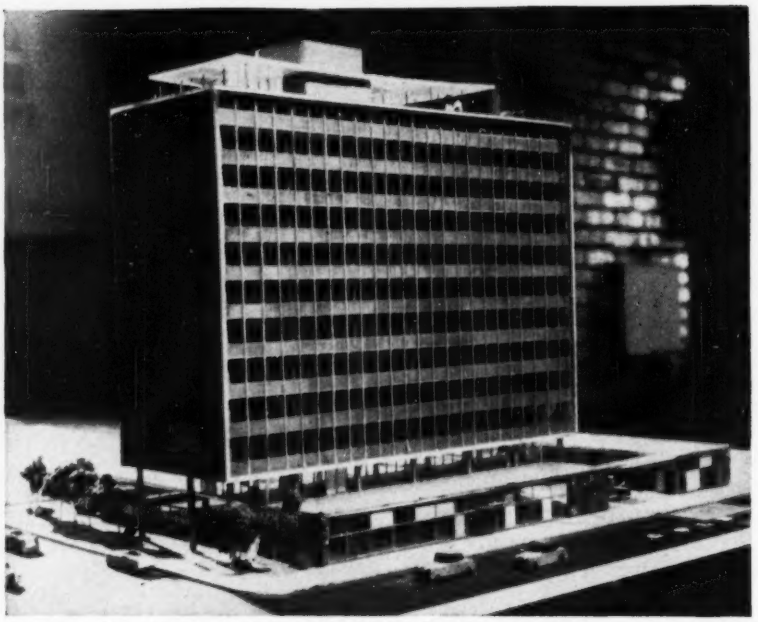
Where tower columns rest on the continuous footings, there is an 8 in. thick pedestal poured integrally with the footing across its whole width.

Around the 12-story tower lies a light one-story structure independent of the tower's structural work, but carried on spread footings at about the same level as the continuous footings. The tower and the one-story building are separated by a ½-in. expansion joint, which will allow the heavier tower to settle independently of the one-story section around it.

Floor slabs 6 in. thick will cantilever 3 ft 6 in. past the column line at the sides of the tower and 5 ft past the

FOUNDATIONS for the tower of a new building in Albuquerque, N. M., are formed on compacted sand subsoil. Ties between footings permit the foundation of the earthquake-resistant tower to move as one unit.


tunnels
to towers
TOSS IT
TO
TERRY!
No matter how tough the assignment, there's no heavy or specialty steel construction Terry can't tackle. For over 20 years, Terry has handled the most difficult jobs in this business – TV and Radio Towers, Bridges, Tunnels, Piers, Tanks, Industrial Plants, Airplane Hangars. Whether in this country or in any other part of the world, if there's a formidable problem involving designing, complicated steel construction, or fabrication to close tolerances – Terry can solve it for you.
Call, write, wire – a Terry structural steel engineer will call.
TERRY
STEEL CONTRACTORS, INC.
ENGINEERS • FABRICATORS • ERECTORS • DESIGNERS
for over two decades
Sales & Executive Offices:
103 PARK AVENUE, NEW YORK 17, N. Y.



CONTINUOUS GLASS AND ALUMINUM FENESTRATION, arranged in horizontal bands on tower sides, is made possible by floor slabs cantilevered past column lines. One-story store at street level will be structurally independent of the tower.

column line at either end. With the column line set back, the two sides of the tower are faced with continuous 6½-ft high double-glazed, heat-absorbent bands of windows, separated at each floor by 4½-ft high bands of aluminum spandrels. Extruded aluminum window frames are carried on 5-in. steel I-beams bolted vertically to the edge of the floor slab. Ends of the tower will be finished in a rose-colored face brick.

• **Heat pump**—Zone control with external thermostats in three zones of the building will make it possible to cool one section of the building while heating another with the heat-pump installation. For cooling, water from the shallow, 70-ft, 67 F well will be cooled to 45 F by the evaporation of gas in the installed refrigeration plant. The water cooled will circulate in panels in the ceilings and under window stools. For cold air, the same cold water will run through coils in fan rooms on the basement, 3rd, 7th and 11th floors.

For heating, the warmer 69 F water from the 260-ft deep well will run through the gas condensors of the refrigeration cycle. When the water is heated to 115 deg, it will circulate through panels in ceilings and under window stools in those areas requiring heat. For warm air, the same hot water will go through the fan room coils.

When the heating and cooling load are balanced across the building, water from the cool side will be circulated on the warm side, and water from the warm side will circulate to dissipate its heat on the cool side.

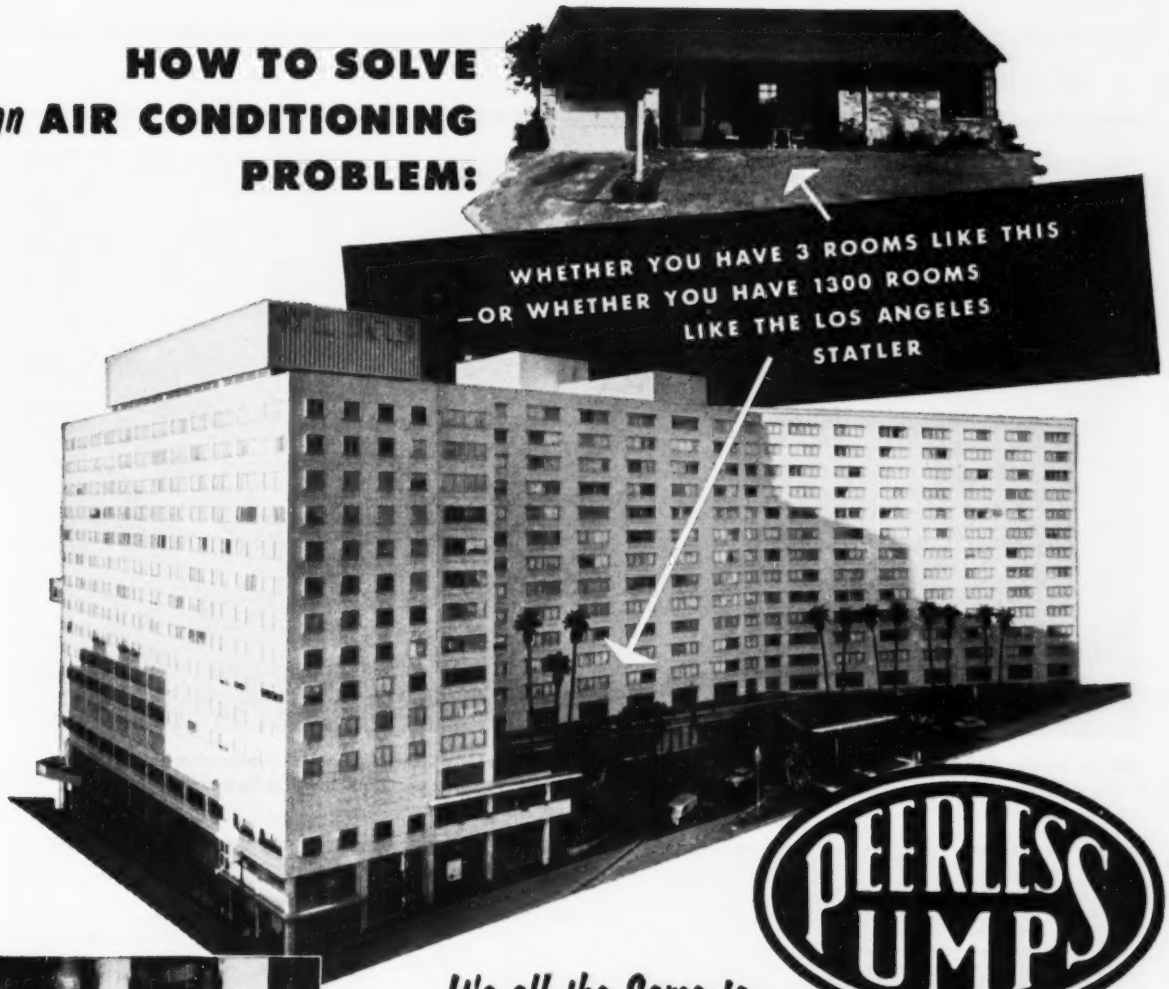
The refrigeration cycle for the heating and cooling system will be handled by three 100-ton units. It is estimated that one of the three units will be a standby in the winter, when only the condensor heating of water from two units usually will be needed and the cold water from evaporator side of refrigeration cycle will be largely wasted.

• **Interior treatment**—Most ceilings in the building will be hung with 2x5-ft slabs of acoustical glass fiber on aluminum T's. Office areas will be partitioned for the most part with movable metal partitions. Electrical conduit ducts will be in floor slabs.

The lobby of the building will feature single-slab reinforced concrete helical stairs and a large patio at one end. Elevators are to be installed near one end of the tower. Toilets, electric equipment rooms and stairwell are clustered around the elevators, and utility piping and duct work will run up beside the elevator shaft on one side of the tower. The glass and aluminum fenestration on this side of the tower will be broken by a vertical strip of porcelain-enameled steel running up the tower's side to cover the utility risers.

Max Flatow and Jason Moore of Albuquerque were architects for the building, and Frank Bridgers and Donald Paxton engineered the heat-pump installation. Lembke-Clough & King, of Albuquerque, is the general contractor.

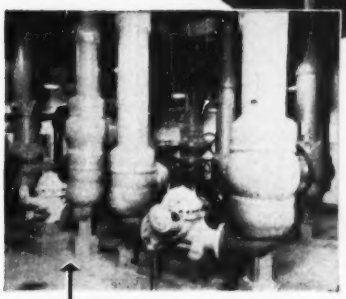
HOW TO SOLVE *an* AIR CONDITIONING PROBLEM:



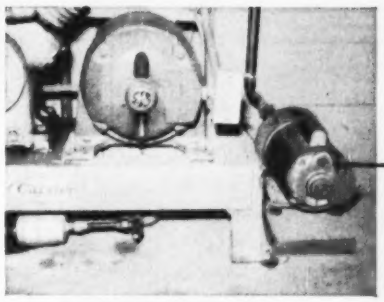
PEERLESS PUMPS

It's all the Same to

THE COMPLETE LINE OF *Peerless* PUMPS



Many a building like the Los Angeles Statler Hotel and office building uses type A pumps like this for air conditioning. *Specifications:* Capacities up to 70,000 gpm; heads up to 300 ft; hp range up to 150 hp; all types of drives.



Many a three room home uses a type PE pump like this for air conditioning. *Specifications:* Face mount and flexible-coupled designs; ¼ to 150 hp; capacities up to 5500 gpm; heads up to 260 ft; all types of drives.

Peerless builds THE BROADEST LINES OF WATER HANDLING PUMPS FOR AIR CONDITIONING OFFERED ANY MANUFACTURER — ***Send for Free Bulletins*** →

PEERLESS PUMP DIVISION

FOOD MACHINERY AND CHEMICAL CORPORATION

Factories: Los Angeles, Calif. and Indianapolis, Indiana.
Offices: New York; Atlanta; Chicago; St. Louis; Indianapolis; Phoenix; Fresno; Los Angeles; Tulsa; Dallas; Plainview; and Lubbock, Texas; Albuquerque, New Mexico.
Distributors in Principal Cities; Consult your Telephone Directory.

PEERLESS PUMPS

fmc

WANT THE LATEST PUMP INFORMATION? MAIL THIS COUPON

PEERLESS PUMP DIVISION
Food Machinery and Chemical Corporation
301 West Avenue 26, Los Angeles 31, Calif.
Please send the Bulletins checked below

☐ TYPE PE PUMP BULLETIN B-2300 ☐ TYPE A PUMP BULLETIN B-1300

Name_____

Company_____

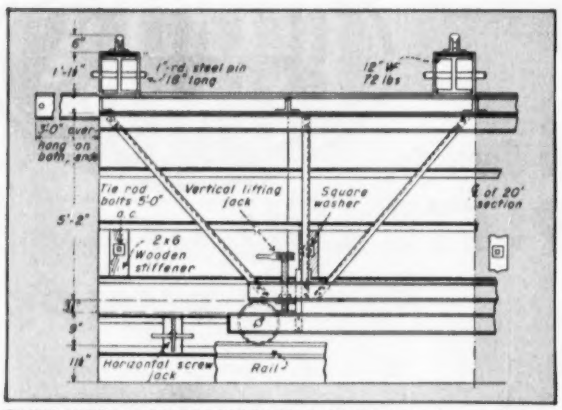
Address_____

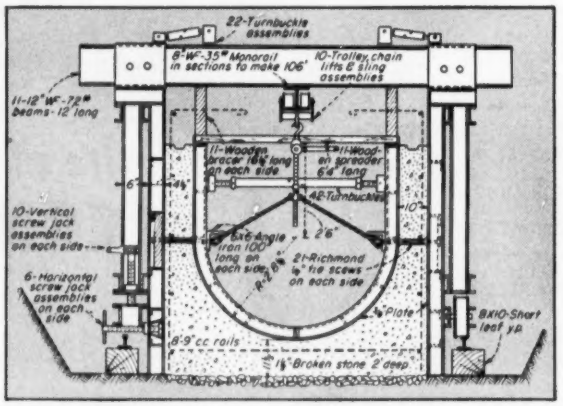
City_____ State_____

EHR

ENR photos by Compton

7:00 A. M.—Yesterday's pour has had a 20-hour setting period, and the 40-hour concrete in the foreground is already tiled to the spring-line. On the left is single wellpoint header which, because of the confined operation area was limited to only 300 ft.




22-Turnbuckle assemblies
6"WF-35# Monorail in sections to make 106'
10-Trolley, chain lifts & sling assemblies
11-12"WF-72# beams-12' long
11-Wooden bracer 18'6" long on each side
11-Wood on spreader 6'4" long
AP-Turnbuckles
10-Vertical screw jack assemblies on each side
6-Horizontal screw jack assemblies on each side
2x6 Angle iron 100' long on each side
21-Richmond 3/4" tie screws on each side
Plate
8X10-Short leaf yp.
8'9" cc rails
1" Broken stone 2' deep

OVERSIZING OF MONORAIL MEMBER is due to the fact that the steel was on hand. Screw jacks break form away from set concrete, and the lifting jacks are used for raising the outside form clear of the bed material for forward travel.

Shop-built traveling form speeds sewer job

J. R. Owen
Assistant Editor

In competition with contractors bidding on an open cut sewer job on the basis of conventional methods, a Brooklyn, N. Y., construction company recently submitted the low bid—thanks to something developed in its own shop—a form that eliminated the need for bracing and sheeting.

Angelo Tomasetti, a member of the T & T Contracting Co., turned the problem over to engineer Vincent Saggese and form superintendent Nick Geurriero.

The form they developed was ready in time for the company to use it as a basis for estimating on the 5-ft i.d., 5,000-ft long Fairfield Ave. sanitary outfall sewer in their home borough.

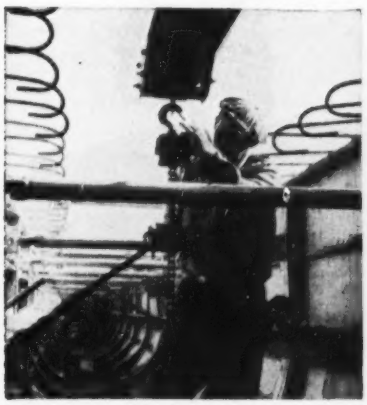
• **The form**—Starting with old 5-ft by 7-ft rectangular steel form panels, curved panels and an assortment of structural shapes, T & T developed a sectional traveling form with trench contact only through the rails that bear the weight of both inside and outside sections. These rails are spiked to timbers embedded in the trench floor.

Each 20-ft section of outside form is mounted on a carriage. Telescoping slip-joints allow free vertical movement and 2-in. transverse motion. With five sections bolted together, the resulting structure is a free-traveling 100-ft rectangular framework, tied across the top by 12 WF—72 beams

8:20—Last turnbuckles are slacked, freeing the outside form from the pipe.

8:40—Superintendent Geurriero directs tractor that tows form to position.

9:10—Reinforcing panels are set as soon as the form is secured in position.



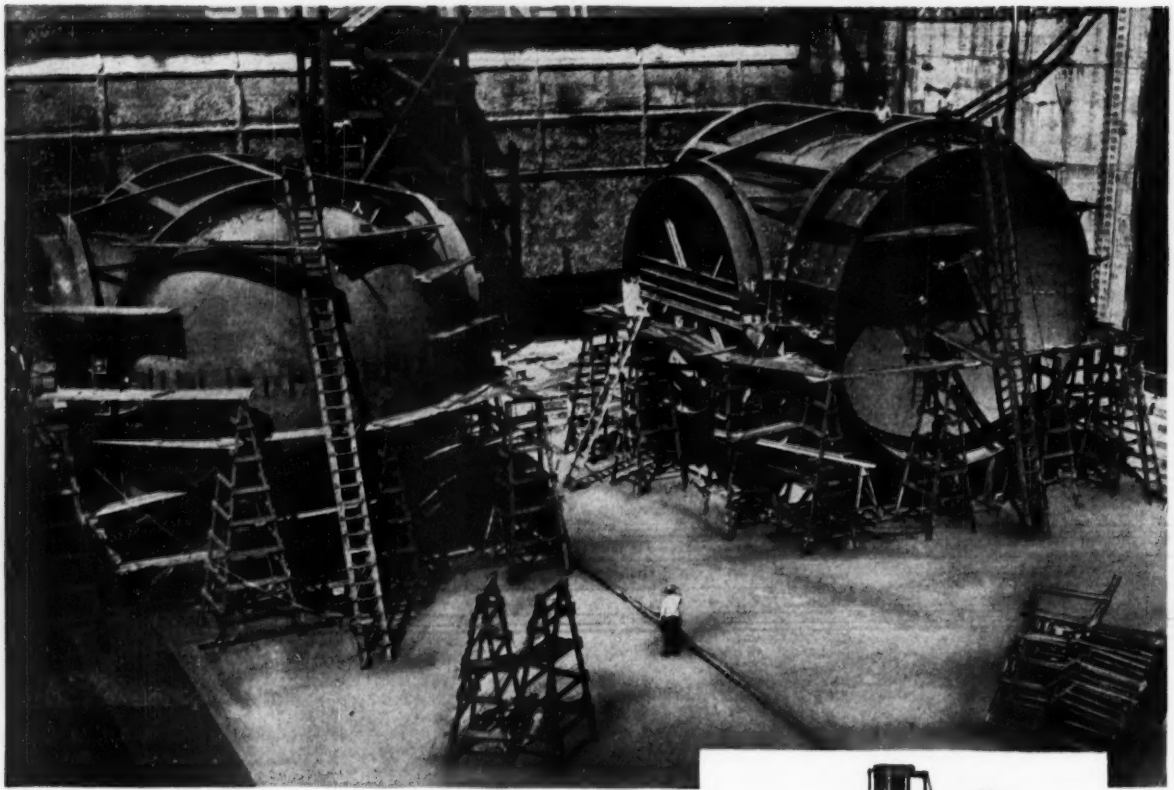
9:30—Leading sling-trolley is reeved to 3-ft extension of monorail beam.

securely fastened by turnbuckles and removable pins. A heavy wide-flange section is centered on the cross members to form an axial monorail extending three feet beyond the framework at each end of the form.

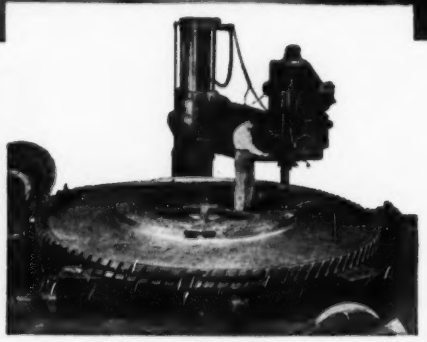
The inside form, fabricated with curved and straight form panels to form a horseshoe section, is cross-braced by 42 turnbuckles in the 100-ft length. It is suspended from the monorail on ten trolleys.

• **Here's how it works**—With yesterday's pour set, the 24-in. broken stone blanket placed ahead, and the yellow-

9:55—All reinforcing and ties installed; the tractor tows the inside form ahead while sling-trolleys are reeved to the monorail one by one in progression.



ASSEMBLING FLOW DIVERSION VALVES of an 8-foot supersonic wind tunnel for the Ames Aeronautical Laboratory of the National Advisory Committee for Aeronautics.



DRILLING A 25-TON FORGING . . . one of 11 alloy steel discs used in one of the two axial flow compressors which Newport News is constructing for the NACA's Ames laboratory.

Man-made Hurricanes

PUSH A BUTTON . . . That's all it will take to accelerate wind up to several times the speed of sound in a new supersonic wind tunnel at the Ames laboratory of the National Advisory Committee for Aeronautics, in Moffett Field, California.

The tunnel is designed to develop new aerodynamic information. Its heart is the "windmaker" . . . two axial-flow compressors which look like a giant tube 50 feet long and 24 feet in diameter, studded with small blades.

Because of the size of this unit, it is significant that the task of building these mammoth compressors was assigned to Newport News.

Newport News has also constructed two diversion valves, similar to huge plug valves, for diverting the air flow from one channel of the tunnel to another, as desired.

Large engineering and technical staffs, operating a plant with acres of brass, iron and steel foundries, five huge machine shops and other extensive fabricating facilities, make Newport News an ideal source for large equipment . . . *standard or special in design.*

Products ranging from components of rayon spinning machines to giant 165,000 horsepower hydraulic turbines operating at Grand Coulee, reflect Newport News' high integration of skill and production facilities.

Consult us on equipment for your present or future projects. Write today for your copy of *"Facilities and Products."*

NEWPORT NEWS SHIPBUILDING AND DRY DOCK COMPANY
Newport News, Virginia

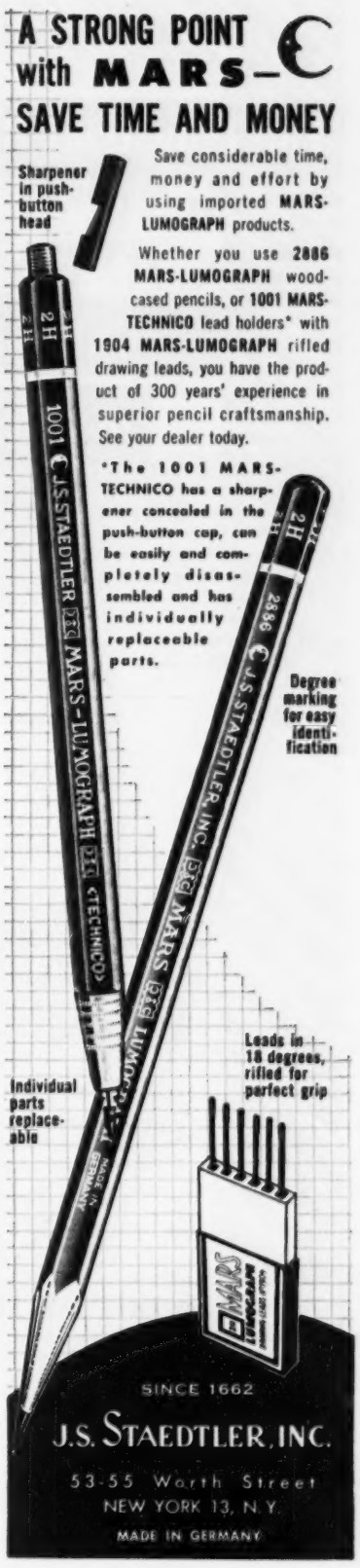
10:30—All blocks and spacers are in place, tie screws are secured, and the end sections have been attached. The job is ready for another 100-ft pour.

pine bed timbers firmly implanted with their rails, the outside form is broken by removal of wedges at the bottom and pins at the top. Turnbuckles are loosened and the entire outside form is jacked vertically into traveling position.

• A tractor moving on the floor of the trench tows the outside form to its new position, and pre-bent and

Detroit News photo

A 14-BRIDGE INTERCHANGE, key point in the extensive expressway program of Detroit, Mich., was the cause of a flurry of critical comment at the recent national conference of the American Society of Planning Officials in that city. The charge was that the city failed to provide center malls on highways used for rapid transit trains. Mayor Albert Cobo, however, pointed out that since the expressways are financed mainly from gasoline taxes, the State Highway Department would not approve a mall used for any purpose not connected with transportation of autos.


A STRONG POINT with MARS—
SAVE TIME AND MONEY
Sharpener in push-button head
Save considerable time, money and effort by using imported MARS-LUMOGRAPH products.
Whether you use 2886 MARS-LUMOGRAPH wood-cased pencils, or 1001 MARS-TECHNICO lead holders* with 1904 MARS-LUMOGRAPH rifled drawing leads, you have the product of 300 years' experience in superior pencil craftsmanship. See your dealer today.
*The 1001 MARS-TECHNICO has a sharpener concealed in the push-button cap, can be easily and completely disassembled and has individually replaceable parts.
Degree marking for easy identification
Leads in 18 degrees, rifled for perfect grip
Individual parts replaceable
SINCE 1662
J.S. STAEDTLER, INC.
53-55 Worth Street
NEW YORK 13, N.Y.
MADE IN GERMANY

For Industrial Roofing & Siding

specify Grade-Marked

Galvanized Sheets

for PEAK PERFORMANCE

Engineers and designers of industrial and commercial buildings know galvanized sheets to be superior building material for this type of construction—particularly for roofing and siding. They know that time-tested galvanized sheets offer:

- **SHORT-TERM *plus* LONG-TERM ECONOMY**
  Low *initial* cost, low *application* cost, low *per-year* cost
- **STRENGTH OF STEEL; RUST-PROTECTION OF ZINC**
  Withstand rough treatment, add structural strength and are fireproof

All galvanized sheets give years of useful service. But the *heavier* the zinc coating, the *longer* the life of the base sheet. Because various weights of zinc coating look alike on the surface, it pays to *specify a grade-marked sheet* . . . Get the heaviest coating you can buy!

ZINC INSTITUTE
2 OZ.
COATING
SEAL OF QUALITY

IT'S THE ZINC THAT STOPS THE RUST

For long, rust-free service, specify a heavy duty sheet such as the "Seal of Quality" with a zinc coating of *2 ounces per square foot.* For heavier coatings order according to ASTM Specification A 93.

ATTENTION: MAINTENANCE DEPTS.

Get the facts on MZP (Metallic Zinc Paint) for structural steel and galvanized surfaces. Also, zinc for cathodic protection and grounding electrodes. Check coupon below.

Send For FREE VALUABLE BOOKLETS

American Zinc Institute, 60 East 42nd Street, New York 17, N. Y. Dept. EN-11
Send booklets checked without cost or obligation

☐ CATHODIC PROTECTION with Zinc Anodes ☐ MZP Metallic Zinc Paint
☐ GRADE-MARKED GALVANIZED SHEETS for Industrial Buildings

Company_____

Name of Individual_____

Address_____

City or Town_____ Zone_____ State_____

fabricated panels of reinforcing are placed.

• The tractor is then hooked onto the inside form, which is cradled in the previously laid section of sewer. All turnbuckles are turned up tight, springing the form away from the concrete, and the first trolley is reeved to the 3-ft extension of the monorail.

• The leading end of the inside form is then raised with the chain lift-sling, until the outside form framework is bearing the suspended weight. The tractor then tows the inside form into place as each of the ten trolleys is reeved to the monorail in progression.

• When the inside form completes its forward movement, it is secured with prepared blocking and spacers, the tie screws are fastened, and the keyed end sections of the form are attached, making the form ready for the next pour.

Dewatering was accomplished with 300 ft of 12-in. header on one side of the trench, and wellpoints on 24-in. centers. The sandy trench walls maintained a firm 1:1½ repose.

An observed log of operations on the ob show a time-lapse of only 3½ hours from the 7:00 A.M. form-breaking to the pouring of concrete into the 42.5-ton form.

James Donovan, of T & T, says that patents on the form are being applied for.

Teamwork shows the way as city and authority plan dam

Acting under new permissive Texas state legislation, the Brazos River Authority and the city of Waco shortly will open a new phase of teamwork aimed at adequate water supplies for both parties:

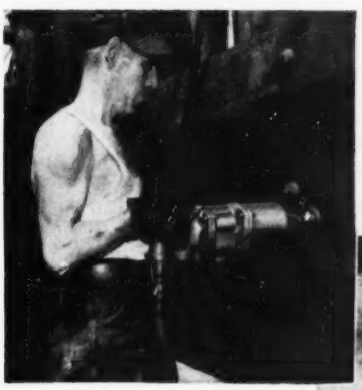
Trustees of the authority have authorized officers to work out a deal with the city for financing and construction of a $4.5-million dam above Lake Waco on the North Bosque River. The project, with a 236,000 acre-ft storage, would meet the domestic and industrial water requirements of Waco until it becomes a city of 500,000, and aid in flood control and conservation in the Brazos district.

Lake Waco, present source of supply, would be kept filled and would remain as Waco's recreation area.

If a contract finally is worked out, it will have to be approved by the river authority board, then presented to voters in a special election.

The authority would issue bonds for the dam and build it, and retirement of the bonds would be entirely from water-use payments from the city. At

make tough jobs EASY!



▲Tool of a Thousand Uses—CP-365 Air Impact Wrench is a real time saver in nut removal, bolting-up of structural steel members and driving lag screws. And it serves as a perfect maintenance tool—keeps equipment in top condition.

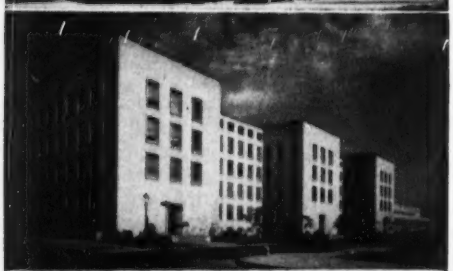
▲No job is too tough for CP Demolition Tools to handle. They afford maximum penetration, yet their easy handling qualities and responsive throttling action are ideal where footing is hazardous. Capacities range from the CP-111 (25 lb. class) to the CP-117 (80 lb. class).

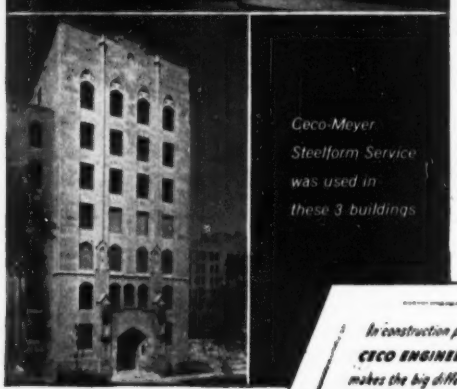
◀ A team that's hard to beat! The heavy duty, diesel driven CP Portable Air Compressor supplying air for the G-300 Wagon Drill equipped with 70-NDC Drifter. An ideal team for fast, low cost drilling.

Chicago Pneumatic *8 East 44th Street, New York 17, N. Y.*

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES • ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

Ceco-Meyer Steelform Service cuts costs 11% . . .





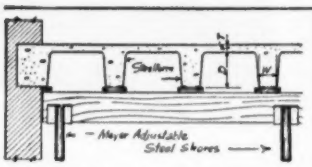
Ceco-Meyer Steelform Service was used in these 3 buildings

In construction products **CECO ENGINEERING** *makes the big difference*

Economy in building is important, even to a great institution. So, when Schmidt, Garden and Erickson, Architects, designed three units of a medical center in Chicago, several methods of constructing floor systems were studied. Ceco-Meyer Steelform Service was selected because it offered definite savings. But let them tell the story.

"We made an analysis of several types of construction," say the architects, "including slab-beam-and-girder, solid slab and several others. When the figures were on paper, concrete joist construction showed a saving of 11% in the concrete frame. Ceco was selected to provide Meyer Steelform Service. J. W. Snyder Company, General Contractor, made the indicated savings realistic."

"To complete a major hospital job on time," says Constructor Victor Snyder, "there must be close cooperation between architect, constructor and a supplier who understands our joint problems. Such a firm is Ceco . . . their construction knowledge in the field, and ability to perform, got them the job."



cross section *Less steel, concrete, lumber, labor with Ceco-Meyer Steelform Service.*

CECO PRE-PLANNING CONSULTATION SERVICE
Ceco Product and Design Specialists will assist you in the application of Ceco building products at the pre-planning stage . . . Call Ceco office for overnight service.

CECO STEEL PRODUCTS CORPORATION
Offices, warehouses and fabricating plants in principal cities
General Offices: 5601 W. 26th St., Chicago 50, Illinois

the same time, Waco's water board would operate the dam even though it would be under control of the authority.

If the Brazos Authority were to sell any of its conservation storage from the lake, the net proceeds from the sale would be divided with the city.

Municipal briefs . . .

• **Building code revision**—The city council of Akron, Ohio, has revised its building code for parking garages, reducing the designed live load requirements from 100 psf to 75 psf. This will permit open-air parking decks and cut an estimated 10% off the cost of construction.

• **RFC approval wooed**—Cleveland, Ohio, planning to extend its rapid transit system to the west, has asked Reconstruction Finance Corp. approval to issue $4 million in bonds for the project (ENR Oct. 8, p. 211).

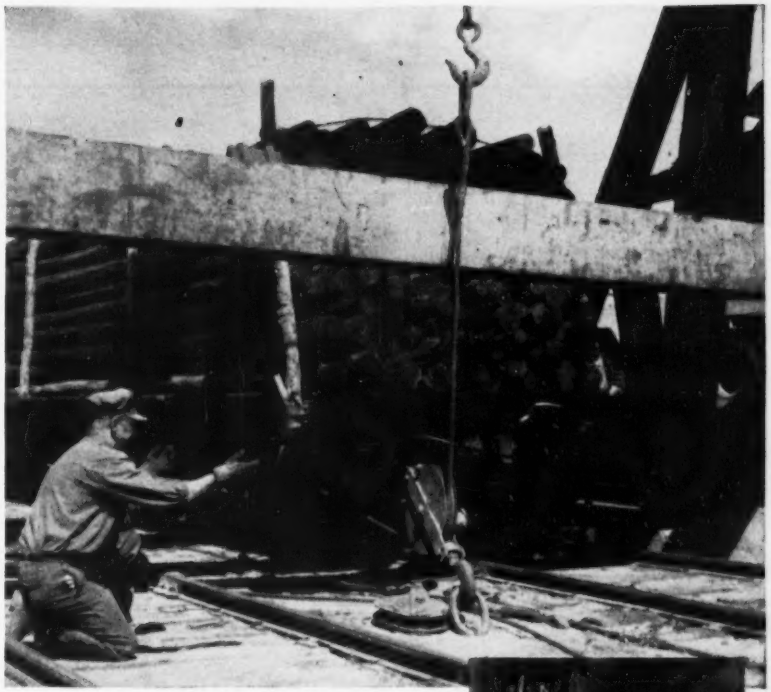
• **Water company sold**—Sale of the Eloy Water Co. to the town of Eloy, Ariz., was completed Nov. 3 for $240,000. The municipality recently voted $500,000 for purchase of the company and for installation of a modern sanitary sewage disposal system. The water company serves 1,100 customers.

• **New Orleans water plant assured**—Lafourche District No. 1 has sold $4.8 million in bonds to clear the way for the building of a water purification plant and distribution system.

• **New city planning commission**—The city council of Wilmington, Del., has approved an ordinance authorizing its mayor to appoint a five-member city planning commission. The ordinance gives the commission broad powers effective Dec. 1.

• **Bids for preliminary plans**—The metropolitan council of Toronto, Ont., reversed its decision recently on giving preliminary design contracts to DeLeuw, Cather & Co., Chicago. Canadian firms objected so strenuously that it was decided to call for bids for the work.

• **New town faces water shortage**—New Ellenton, S. C., a town which was moved from the area acquired by the AEC for the construction of a new atomic energy plant, is faced with a water problem. Existing facilities consist of private wells that are inadequate to serve the community which in little more than two years grew from zero population to 4,000.



Railway Wins Bulge Battle

Ingenuity and some snatch blocks solved the problem of adjusting shifted loads on railway cars passing through the Minnesota Transfer Railway. Shown above, a load of shifted poles is being straightened by pulling them against an equalizing beam. This operation eliminates unloading and reloading.

The heavy duty American, 15 ton snatch blocks, hooked into links anchored in the ground, change the vertical pull of a powerful overhead crane into a lateral one. With this arrangement, men handling the cars can press back bulges made by shifting loads inside the cars, as in the photo at the right.

Time and money-saving applications such as these and others described in the Crosby Clipper show the versatility of American Hoist products. Designed to speed work and cut costs, American products may be the answer to your production headaches. If your business is such that factual, on the job stories would be of interest to you, mail the coupon below and we will send you copies of the American Crosby Clipper regularly.

American Hoist
and DERRICK COMPANY

American Hoist & Derrick Company
St. Paul 1, Minnesota
Yes, I'd like to get the American CROSBY CLIPPER.
Also, send information on the following equipment:
— Hoists — Derricks — Cranes — Portable Elevators
— Wire Rope Clips

Name_____ Title_____
Firm_____
Address_____
City_____ Zone____ State_____

Send coupon today!

AN ALLIS-CHALMERS REPORT

How hydraulic torque converter drive improves big tractor performance—increases job output

With a two-range transmission and hydraulic torque converter, the Allis-Chalmers HD-20 is the only crawler tractor that is capable of exerting maximum drawbar pull *at all times* . . . under all load and terrain conditions . . . without gear-shift guesswork.

Whatever the job, the operator need merely make contact with the load and then open the throttle. As the load requirements change, the hydraulic torque converter *automatically* matches the conditions with exactly the right combination of speed and pull.

This eliminates most shifting . . . leads to far more work done in a continuous work cycle . . . far longer equipment life.

BULLDOZING — Hydraulic torque converter lets Allis-Chalmers HD-20 take full advantage of available horsepower, roll bigger loads, tackle tougher dozing jobs. With full control at the throttle, operator can work safely and efficiently, regardless of terrain.

PULLING — Hydraulic torque converter drive actually multiplies torque up to four and one-half times... develops tremendous drawbar pull to start the load smoothly . . . and automatically accelerates to the highest speed that conditions permit, in either high or low range.

PUSHING — Operator just makes contact, then opens the throttle and relaxes. The HD-20 automatically matches speed to that of pushed equipment, maintains steady contact while loading, sends load off to the fill at higher speed.

DIGGING AND LOADING — With the HD-20G, the operator crowds surely and steadily, using only throttle and bucket levers. With full horsepower always available even at creeping speed, he can work effectively in mud, on hillsides or the edges of banks.

OPERATOR COMFORT AND EFFICIENCY — He chooses speed range when he starts, and he can finish most jobs without further clutching or shifting (except for reverse). Result — he works easily, yet efficiently all day long.

LONGER LIFE FOR BIG EQUIPMENT — Hydraulic cushioning reduces shock and vibration, with less strain, less wear on both the HD-20 and its auxiliary equipment, whether mounted or drawn. That means *less* downtime, *more* production time.

Hydraulic torque converter drive, exclusive as standard equipment with Allis-Chalmers, is just one of many reasons why the HD-20 assures you higher output with less upkeep. Your nearby Allis-Chalmers dealer invites you to get the full story . . . and to see it in action.

ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

Weight — 41,000 lb.
175 net hp. at flywheel

E. J. Groeschel, Turner Construction engineer, locating column center line on concrete wall form using a Berger Model 6 1/4 M Transit.

sighting on new lines of sound with BERGER TRANSITS

The building "specs" laid down for the new White Plains, N. Y. long distance dial switching center of the American Telephone and Telegraph Company's Long Lines Department left no room for compromise with accuracy. To house the delicate telephone line equipment and mammoth machinery—

Foundations for diesel generators and other heavy mechanical equipment must be "dead level"...

Surfaces of finished floors must be free of depressions and high spots and not vary by more than ⅛" when tested with a 10-ft. straight-edge—maximum allowance over an entire area limited to 3/16"...

Forms placed in successive units for a continuous surface must be so accurately aligned that completed surface would be smooth and free from irregularities...

Column center lines and wall lines for the reinforced concrete exterior walls and interior concrete partitions must hold extremely close tolerances—as do all footings, foundation walls, lines and grades.

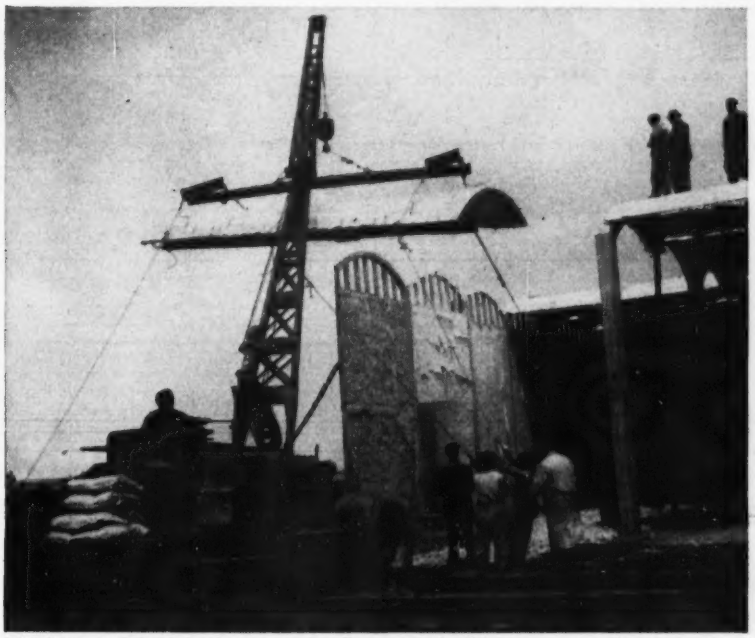
Turner Construction Company, nationally known builders, were selected to erect this unusual building—and Berger Transits were on the job, as they are on so many other Turner projects. For when the "specs" call for really close-tolerance surveying, leading engineers and construction men buy Berger. Take one into the field and see why.

Write for a copy of "ACCURACY IN ACTION"

C. L. Berger & Sons, Inc., 37 Williams St., Boston 19, Mass.
342 Madison Ave., New York 17, N. Y.

THE BEST IN ~~SIGHT~~ IS BERGER

ENGINEERING AND SURVEYING INSTRUMENTS... SINCE 1871



BARREL VAULTS for factory roof in Bogota, Colombia, are supported by precast end walls and arch ribs springing monolithically from tops of columns.

Light weight, few forms permit fast erection of concrete structures

A process of fast, lightweight concrete construction has been developing in Bogota, Colombia, to meet the growing demand for new factory buildings and inexpensive housing. The central element of the new, relatively inexpensive development is the vacuum concrete process applied to barrel vault roof slabs and end walls. A minimum of forms is required since the roof barrels and end walls are cast in stacks on only one form at the bottom of each stack. If each element of the structure were formed in wood and the roof were made of flat slabs instead of the thinner barrels, the designers believe that the expense of the building would be 40% greater.

• **Vacuum and paper**—To form slabs the designers first placed one curved wooden form on the ground for the roof barrels and one flat form for the end walls. Paper is then placed on the form and wire mesh reinforcing is set on the paper. The roof barrels sometimes receive additional longitudinal reinforcing. Concrete is then placed for the slab and the vacuum mat is applied. This can be taken off the slabs within a half hour, and four roof barrels can be cast per day, one on top of the other, while six end walls can be cast per day. Sheets of paper separate each pour from the next.

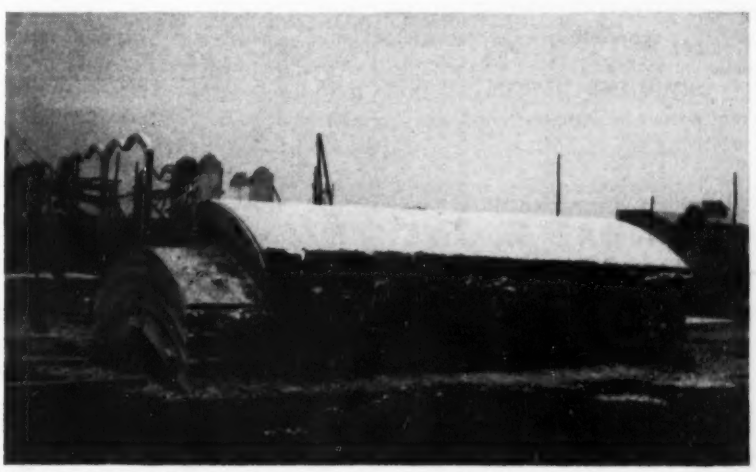
As many as 35 barrel vaults have been cast one on top of another in this fashion. Thicknesses vary from 1¼ to 2 in. with areas of the barrel ranging from 215 sq ft to 270 sq ft. The end walls are around 3 in. thick.

Prior to precasting operations, reinforced concrete columns with monolithic arch ribs at their tops are placed on spread footings. The springing point of the arch rib at the column is thickened to take the heavy moments imposed by the weight of the barrel vaults that will rest on them.

The end walls are erected on small footings spaced at intervals to support only each side of the slab. A shallow grade beam is then placed under the end wall slab between the footings, thereby making the end wall and its footing a monolithic unit.

End walls are erected while the roof barrels are cast. When the concrete roof barrels have set, they are lifted off the stack, and wood bracing is placed on the concave side of each barrel so that when it is erected by crane

COLUMNS incorporate arch ribs thickened for heavy moments at spring line.



PRECASTING of barrel vaults was carried out on only one arched form at the bottom of the stack. Layers of paper separate one vault from the next in stack.

SCHRAMM 600-C.F.M. COMPRESSOR

A WISE CHOICE FOR ANY TOUGH AIR JOB

Schramm 600-c.f.m. operating two heavy-duty Wagon Drills removing 165,000 yards of rock excavation. Operating two — ten-hour shifts, this Schramm Compressor is in constant use twenty hours per day.

BECAUSE YOU GET . . .

FUEL SAVINGS UP TO 50% . . . Pneumastat control . . . Modern engine design . . . Proper operating speeds . . . Less horse power required by compressor . . . Super-efficiency compressor design.

SIMPLIFIED DESIGN . . . Fewer parts . . . Engine parts are interchangeable with compressor parts for lower maintenance . . . Cam operated mechanical intake valves provide greater efficiency.

SAFETY FEATURES . . . Electric push-button starter . . . Stronger, 400# test air receiver . . . Heavy grill for radiator protection . . . Easy accessibility to operating parts . . . No protruding parts.

MORE PLUS FEATURES . . . Tool boxes large enough to carry complete assortment of tools . . . Engine and Compressor cooled by water and unit can be operated with doors in place . . . Dual fan belts.

SCHRAMM, INC. • *The Compressor People* • WEST CHESTER, PENNSYLVANIA

SCHRAMM AIR COMPRESSORS

A SIZE AND MODEL FOR EVERY AIR NEED

the operation does not crack the barrel. Placing the roof barrels on the arch ribs and end walls completes the major structural work of the building.

Designer of the system is Dr. Alvaro Ortega of Vacuum Concrete de Colombia, Bogota.

Experts report on prestress fire resistance

"A 2-in. concrete cover and proper grouting (for steel prestressing cables in concrete beams) . . . provide adequate protection at temperatures up to 1,300 to 1,475 deg. F.", Dr. G. Baar, Director of the Fire Research Station at Elstree, England, told the First International Congress of the International Federation of Prestressing held in London last month. Dr. Baar has carried out the first major fire tests of large-scale prestressed beams in England.

His paper brought out some interesting conclusions:

- "Failure is unlikely to be sudden. There is a progressive sagging of the beam as prestress is lost, and this is well marked before collapse occurs. A fireman would have sufficient warning, as cracks appear in the beam and increase in size some time before failure. A visible increase in deflection occurs when collapse is imminent." (In a general report to the congress, A. W. Hill pointed out that the limiting temperature for high-tensile prestressing steel would appear, from test results, to be 750 deg. F.)
- "Beams which have been exposed to a fire of shorter duration, than that which would cause failure, are likely to retain a high percentage of their original strength on cooling, but generally with a marked residual deflection and some loss of prestress."
- "Complete failure of prestressed concrete members is not to be expected in case of fire, but excessive deflections are more likely to occur than in an ordinary reinforced concrete structure."

• **Stronger when cold**—The strengthening effects of low temperatures (–40 deg F.) on reinforced and prestressed concrete beams were outlined to the congress in a paper by G. Huyghe of the University of Ghent, Belgium. On the basis of Huyghe's tests it was concluded that the observed reduction in deflection of the beams at low temperature may decrease their impact resistance. But this has not yet been established, since the increase in modulus of elasticity may be compensated by the increase in crushing strength and the modulus of rupture.

NOW
NAVY JOINS ARMY
As a Satisfied User
Of Franki Foundation Methods

Denver-type hangar, U. S. Naval Air Station, Millington, Tennessee; Engineer—Bureau of Yards & Docks; Client — R. P. Farnsworth & Company, Inc.

Because of the proven success of Franki Foundation Methods in installations for the U. S. Army and Air Corps, the general contractor received permission from the U. S. Navy to use Franki Pressure Injected Spread Footings, subject to load test.

It was felt that Franki Pressure Injected Spread Footings would save valuable time over originally specified pre-cast concrete piling.

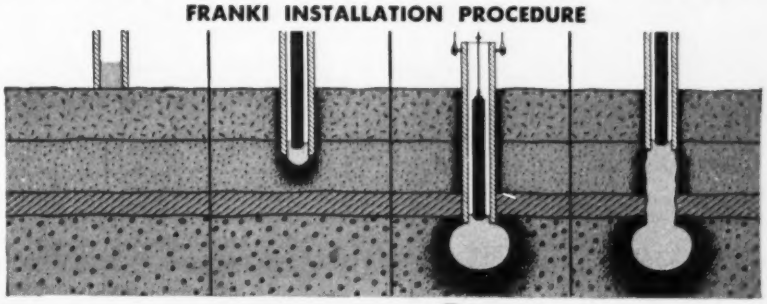
Under a load test of 240 tons, the Franki Displacement Caisson showed a gross settlement of only 0.32 inches, and a net settlement of 0.12 inches. 200 Franki Caissons were installed, each approximately 44 feet in length and capable of a 120 ton design load.

Contractor not only saved valuable casting time, but presented the U. S. Navy with a credit. Here's proof again that Franki Pressure Injected Spread Footings are first for speed, safety and economy.

• • • LIGHTEN YOUR COSTS . . . INCREASE YOUR LOAD! • • •

Send for "Franki Facts" for complete information about this U. S. Naval Air Station project—and an illustrated booklet describing Franki Foundation Methods in complete detail. Write Franki Foundation Company, 114 East 40th Street, New York.

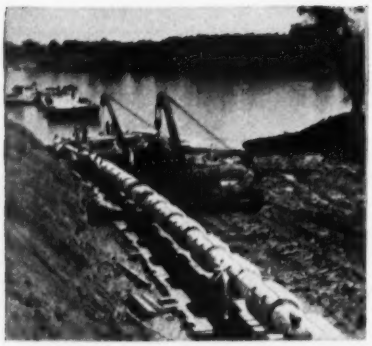
FRANKI INSTALLATION PROCEDURE



FRANKI
FOUNDATION COMPANY

NEW YORK, N. Y.
PHILADELPHIA, PA.
PITTSBURGH, PA.

FIRM FOUNDATIONS FOR OVER FORTY YEARS



If it's concrete . . .

UNIVERSAL

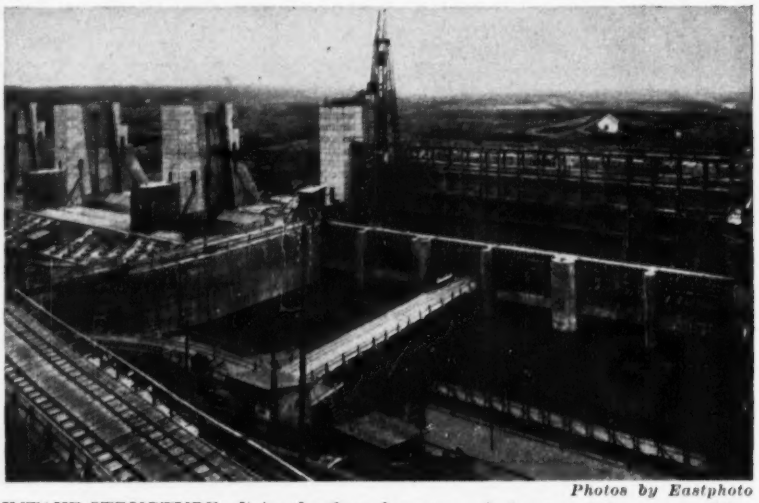
world's largest manufacturer of concrete sewer and culvert pipe

can make it

26 plants for convenient, economical service.

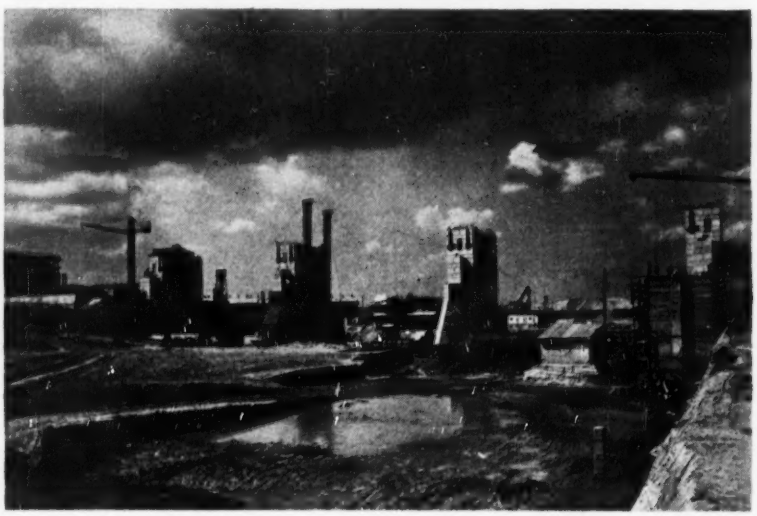
30 years' experience in pipe, cribbing, precast manholes, riverweights, flat base pipe. Name it, we make it!

UNIVERSAL
CONCRETE PIPE CO.
297 South High Street
Columbus, Ohio
Publishers of Famous "Pipe Dreams"



Photos by Eastphoto

INTAKE STRUCTURE adjoins the three downstream lock gates of the new combination hydro, irrigation, and navigation project at Tokay, Hungary.



LOCK GATE SUPPORTS incorporate concrete buttresses, on downstream side, and precast block facing.

Hungary pushes multi-purpose dam

Comprising a dam, a system of locks, and a hydro power station, the new Tiszalok project near the town of Tokay, in northeast Hungary, reportedly will have installed capacity of 55,000,000 kwh annually. Scheduled for completion some time next year, the project will have three 40-yd wide locks at one side of the dam's hydro intake structure.

The dam and the locks will make navigable to the north a 50-mile stretch of the Tisza and a 30-mile stretch of its tributary the Bodrog. The reservoir of the dam will permit the irrigation of 300,000 acres and will provide flood storage for the rich agricultural plain to the south.

Hungary blasts muck

From Hungary comes word of a large scale muck-blasting operation to construct a railway embankment across marsh land. Hydraulically placed sand was first put down on the peat and muck. Blasting at varying depths then settled the whole mass. Blasts in the marsh's top 7-ft layer of peat settled the embankment 5 ft. Then charges were placed as deep as 36 ft in the 30-ft layer of soft muck under

Instead of starting all over again

...he begins here

Here's how the Lukens Steel Company, Coatesville, Pa., uses Kodagraph Autopositive Paper to eliminate retracing in preparing flow diagrams and piping layouts.

These diagrams and layouts must also show the floor plans and fixed equipment installations of the departments involved. But instead of retracing this information from the basic plant layout drawings, Lukens Steel simply reproduces the drawings on Kodagraph Autopositive Paper —gets *positive, photographic* duplicate tracings directly.

This gives the draftsman a tremendous head start . . . for he only has to add the new detail to the Autopositive print . . . *and another job is done instead of being barely begun.*

Low-cost Autopositive reproductions are made this easily at Lukens Steel:

Kodagraph Autopositive Paper is exposed with the drawings in a direct-process machine . . . and processed in standard photographic solutions. A fast, convenient room-light operation that produces positive photographic intermediates *without a negative step . . . without a darkroom.* These intermediates, in turn, assure highly legible prints.

Lukens Steel Company also uses Kodagraph Autopositive Paper *to produce print-making masters* from vendor blueprints; *to simplify filing,* by combining small vendor drawings on Autopositive intermediates in the standard Lukens drawing size; *to get low-cost protection* for original drawings which must be sent out of the plant.

Kodagraph Autopositive Paper

"THE BIG NEW PLUS" in engineering drawing reproduction.

Get the full story on the sensational line of Kodagraph Materials which you, or your local blueprinter, can process easily, at low cost. Write today for a free copy of "Modern Drawing and Document Reproduction."

MAIL COUPON FOR FREE BOOKLET

67

EASTMAN KODAK COMPANY
Industrial Photographic Division, Rochester 4, New York

Gentlemen: Please send me a free copy of your illustrated booklet, "Modern Drawing and Document Reproduction."

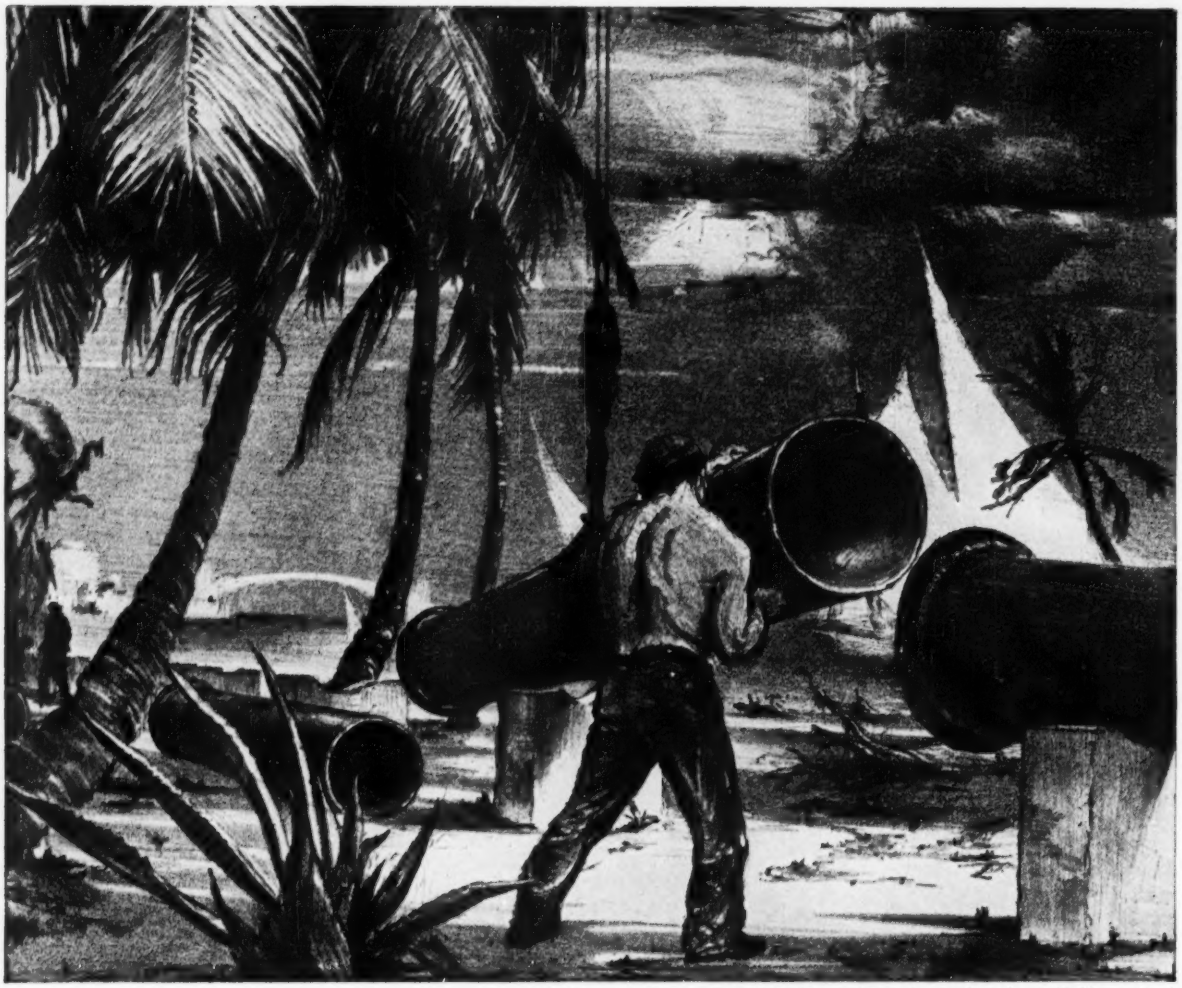
Name _____ Position _____

Company _____

Street _____

City _____ Zone _____ State _____

Kodak
TRADE-MARK



Lithographed on stone for U. S. Pipe and Foundry Co. by John A. Noble, A. N. A.

WHEN THE GROUND is unstable or a definite grade has to be maintained cast iron pipe is frequently laid on piers or pile bents. Whether above ground or underground there are installations of cast iron pipe with continuous service records measured in generations.

We are well equipped to furnish your requirements for cast iron pipe and fittings made in accordance with American Standard, Federal and American Water Works Association specifications. U. S. pipe centrifugally cast in metal molds is available in sizes 2- to 24-inch and pit cast pipe in the larger sizes with bell-and-spigot, mechanical, flanged or other types of joints.

U.S.
cast iron
PIPE
FOR WATER, GAS, SEWERAGE AND INDUSTRIAL SERVICE

United States Pipe and Foundry Co.,
General Office, 3300 First Ave., N. • Birmingham 2, Ala.
Plants and Sales Offices Throughout the U. S. A.

the peat. When these charges were set off, the whole embankment subsided another 9 ft. A firm layer of sand lay under the muck.

Open-cut tunnel

Apply novel method to go under canal

Two tunnels one vehicle and one railway, are being built by open cut at a point where the heavily traveled North Sea Canal is to be widened at Velsen, the Netherlands. The tunnels will be constructed in two sections, the first under the area where the additional width of the canal is to be formed.

When the first section is completed and the new width of canal is opened over it, the existing canal will be drained and the tunnel will continue by open cut.

• **One cofferdam**—To construct the first section, a cofferdam will be sunk to the bottom level of the tunnels (80 ft below ground level) at a point on the south bank of the existing canal which runs east and west. Then an open cut, up to the cofferdam, will be excavated and the first section of the two tunnels will be built in reinforced concrete. These sections will then be covered as the new width of the canal is formed over them.

• **Two earth dams**—The next step will be the opening of the new width of canal and the closing off of the existing canal with earth dams placed on either side of the area to be excavated for the next section of tunnels. This portion between the earth dams will then be drained, and the tunnel constructed by open cut from the cofferdam northward. When this last section of tunnels is finished, the old width of canal will be restored to use, the cofferdam removed and the center strip of land left in the middle of the canal dredged out. The North Sea Canal will then be twice as wide at that point, and there will be a vehicular and rail tunnel running under it. The underground length of the tunnels will be one half mile when they are finished in 1959.

• **Tunnel rather than a bridge**—The choice of tunnels to relieve the crowded highway and rail traffic conditions at Velsen was based on the fact that a bridge would be unfavorable to navigation on the canal. Furthermore a bridge would be an obstruction to the new sluiceway for the

(*Continued on page 70*)

HOLE THRU FASTER
WITH "COMMERCIAL"
STEEL TUNNEL SUPPORTS

Full face headings in many hard ground tunnels can only be maintained when tunnel supports can be set quickly after the mucking operation. "Commercial" steel supports are completely fabricated and as they go into the tunnel portal you may be sure that they will fit, will erect into place quickly and only need field bolting by less skilled labor.

Steel provides the most economical and by all odds the safest ground support. Use "Commercial" steel supports, designed and produced by men who have had the greatest experience, are recognized specialists and whose product was used with such outstanding results in tunnels on the Pennsylvania Turnpike.

THE "COMMERCIAL" SHEARING AND STAMPING COMPANY
YOUNGSTOWN, OHIO
CHICAGO, ILLINOIS
SALT LAKE CITY, UTAH

INADEQUATE SUPPORTS MAY··· STOP YOUR TUNNEL JOB.

TRAVERS DAM:

$20,000,000 job expected to return $25,000,000 a year

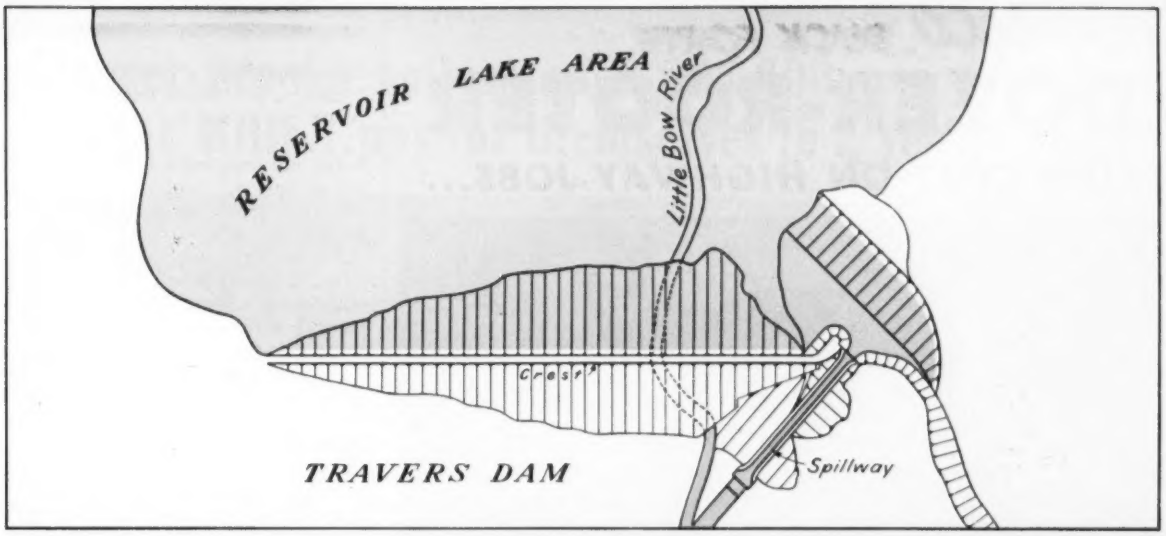
A Cat DW20 with No. 20 Scraper loads earth on the Travers Dam site. ▲

Haul roads are maintained by this No. 112 Motor Grader. The naked hills are typical of this arid region. ▼

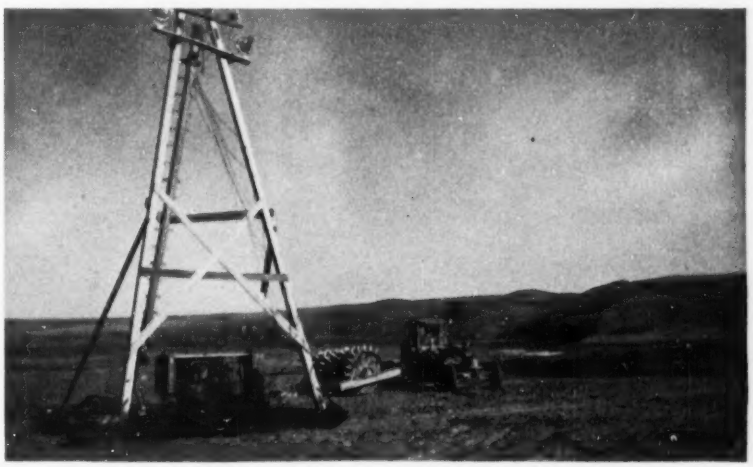
A region of arid wasteland will be brought under irrigation by the Bow River Development, now taking shape in southern Alberta, Canada.

At an estimated over-all cost of $20,000,000, the project will ultimately bring water to 240,000 acres, with a potential yearly crop yield valued at $25,000,000—a 125% annual dividend on the investment!

Largest single structure in the development is a big earthfill dam across the valley of the Little Bow River,



This Caterpillar D311, mounted on skids, generates power for lighting the dam at night. ▶



southwest of Travers, Alberta. When completed it will contain about 4,500,000 cubic yards of material. Rising 110 feet above the original river bed, the dam will be 3030 feet long at the crest and 940 feet thick at the base. It will impound a reservoir lake 15 miles long, containing 250,000 acre-feet of water, and forming a connecting link between Lake McGregor Reservoir and Little Bow Reservoir.

As on nearly all other big earthfill projects, Caterpillar* equipment is being used for a large part of the job. Emil Anderson Construction Co., Ltd., is moving earth from the borrow pit to the dam crest with Cat* DW20 Tractors and No. 20 Scrapers. The big yellow units average 21 cubic yards to the load and make 12 trips per hour on a 1200-foot haul. Part of the haul has been up a 20% grade, but each scraper has averaged 1000 yards a day with much less down time than equipment of other makes.

Caterpillar machines in the Anderson fleet also include D8 Tractors with No. 8A Bulldozers, Cat Motor Graders and a D311 Electric Set, used to floodlight the dam for night work. One of the reasons for the high production record set by this equipment is the prompt, reliable parts and repair service provided by the local Caterpillar Dealer.

▲ A D8 Tractor with No. 8A Bulldozer handles big blade loads on the Travers Dam fill.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

*Both Cat and Caterpillar are registered trademarks—®

ESCO BUCK FORTE
DOZER-ROOTER
CUTS COST ON HIGHWAY JOBS...

RIPS BLACK TOP, CONCRETE AND ROCK...DOZING AS IT GOES

You no longer need to haul a cumbersome drawbar ripper on road-building jobs. The ESCO Dozer-Rooter can be easily installed on a straight or angle dozer. Costs less to own, less to operate—out-performs a conventional ripper. The Dozer-Rooter will rip through rock, asphalt and concrete. Yet, it's portable enough to carry on the tractor or in a pickup truck from job to job. You can get tractor maneuverability on narrow city streets—easy efficient operation on hillsides and other places where a drawbar ripper is impractical. Precision control of Dozer-Rooter action permits safe operation around installations such as pipes, cables and footings.

The ESCO Dozer-Rooter can increase your profits. Ask your ESCO dealer for a demonstration or write for Booklet 194-A.

Dozer-Rooter adjust easily to four footing depths — 9"-15"-21"-27". No special tools are needed.

ESCO

REPRESENTATIVES IN ALL MAJOR CITIES
Offices and Warehouses: Honolulu, Hawaii; Houston, Texas; New York, New York; Los Angeles, San Francisco, California; Seattle, Spokane, Washington; Centralia, Pennsylvania; Eugene, Medford, Oregon; Salt Lake City, Utah. In Canada: Vancouver, B. C., and Toronto, Ontario.

ELECTRIC STEEL FOUNDRY CO.

2167 N. W. 25th AVENUE, PORTLAND 10, OREGON
712 PORTER ST., DANVILLE, ILL.

large North locks at Ijmuiden, close by Velsen, where ocean traffic from the North Sea enters the canal.

• **Salt and fresh water tables**—An open cut method was necessary in the tunnel construction because of the need to preserve intact two different subsoil water tables, one brackish and one fresh. To a depth of 53 ft below the surface the subsoil is saturated with brackish water, since enormous quantities of salt water enter the canal when sea-going vessels are passed through the locks at Ijmuiden. Below the 53-ft depth there is a 3-ft layer of relatively impervious clay, and below the clay the subsoil is saturated with fresh water which supplies all the wells in the area. So as not to let the fresh water resources in the area become brackish, the clay layer had to be preserved intact. This could be done properly only by the open cut method wherein the clay could be replaced at the proper level after completion of the tunnel and water let back into the subsoil with the removal of well-points used to de-water the excavation.

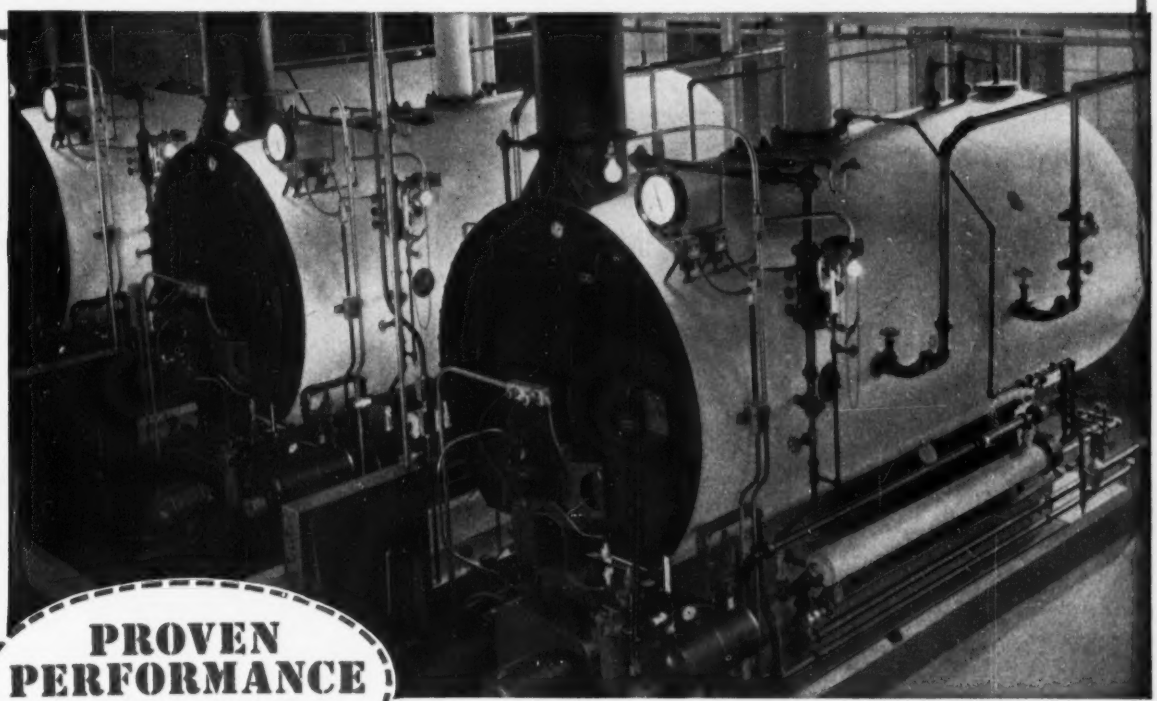
• **Construction features**—The inner reinforced concrete tunnel walls will be covered with a watertight layer of asphaltic impregnated layers of wool and asbestos felt. Copper foil will be incorporated in the waterproofing at the concrete joints in the tunnel walls. Then the whole waterproof layer will be covered by an outer concrete shell.

In the vehicular tunnel, footpaths will run along each side of the two separate roadways. These paths will not be used by pedestrians, but are there for purely psychological reasons. The designers believe that drivers are usually inclined to keep a certain distance from the curb, so that in this case they will be far enough from the walls to obviate the unpleasant sensation of driving alongside a vertical wall. To reduce this sensation even further, the tunnel walls will be inclined away from the roadway.

Tilting the walls back from the roadway in this manner also will direct the soundwaves from traffic toward the acoustical ceiling of the tunnels. It is expected that the noise in the tunnel will correspond approximately to the noise in a city street.

To ease the motorist's eye strain, the quick change from daylight to artificial tunnel light will be circumvented by concrete lattice work placed above the open approaches to the tunnel. The concrete grid structure will prevent access of direct sunlight onto the approach, thereby allowing the driver's eyes to adjust gradually to the

Cleaver-Brooks boilers save $25,000 per year for Hoosac Mills...pay for themselves in 2 years' time!



PROVEN PERFORMANCE

ANOTHER OUTSTANDING REPORT FROM A CLEAVER-BROOKS OWNER

After installation and starting service was completed, a check was made on boiler output. Tests indicated efficiency exceeded the guaranteed 80%. After eight months' operation without tube cleaning, stack temperature showed no noticeable gain, indicating high efficiency had been maintained. *Planned and installed by Frank I. Rounds Co., Newton Highland, Mass.*

INSTALLING 3 Cleaver-Brooks self-contained boilers at Hoosac Textile Mills, New Bedford Division, was a major step in ending boiler worries. Hoosac can count on yearly savings of $25,000, and they're set up for future expansion as well.

Before deciding what type of boilers to install for replacing old, hand-fired boilers, Hoosac carefully considered these factors:

1. **Efficiency of steam generation** — the cost for supplying 12,000 lbs. of steam required each hour at peak capacity for heating and processing.
2. **Saving labor costs** — through safe, automatic operation.
3. **Cleanliness** — important to textile manufacture.

A study of past performance and prominence of similar units in the industry — showed that Cleaver-Brooks self-contained boilers would fill the bill.

Guaranteed 80% thermal efficiency was one of many influencing factors in selecting the 3 Cleaver-Brooks 150 hp. boilers. Even with loads as low as 30% of rating, these boilers operate with a flat 80% efficiency. (Hoosac operates their plant over widely fluctuating loads, particularly in summer.)

That they attained their objectives is borne out by these results — *results which showed the boilers paid for themselves in 2 years' time.*

1. **$15,000 savings in fuel** — fuel cost studies showed 275,000 gals. of oil at 5½¢ per gal. provide steam for a year's operation. Same steam formerly required 2,000 long tons of coal at $15.00 per ton.
2. **$10,000 savings in labor costs** — fully automatic operation minimized boiler maintenance. Personnel were then available for productive plant work.
3. **Cleanliness** — modern boiler room proved more efficient than previous cluttered arrangement. Hand firing, removal and disposal of fly-ash was eliminated.

In addition to these substantial savings, the installation provided for economical future plant expansion. At present, boiler operation is rotated so all three periodically receive the same service and maintenance.

Cleaver-Brooks boilers are showing similar savings in many other businesses. Investigate — write for Catalog AD-100 and complete information on standard size oil, gas, combination oil/gas fired Cleaver-Brooks boilers, 15 to 500 hp., 15 to 250 psi.

CLEAVER-BROOKS COMPANY
Dept. M.343 E. Keefe Ave.,
Milwaukee 12, Wis., U.S.A.

Cleaver-Brooks

ORIGINATORS OF THE SELF-CONTAINED BOILER

Steam Boilers • Oil and Bitumin Tank Car Heaters • Distillation Equipment
Oil and Gas Fired Conversion Burners

GarWood 75

A New 3/4 yd. Trench Hoe to Dig Deep in Close Quarters!

The rugged new Gar Wood trench hoe digs to a 17'10" depth, dumps at any height up to 19'3" and cuts to 40", 36", 31" and 26" widths with optional dippers . . . Both the standard-duty 75A and the heavy-duty 75B available to suit your own working conditions! . . . All Gar Wood trench hoes are of gooseneck construction . . . Exclusive right angle drive—power actuated mechanical drum clutches —conical hook rollers and many other operating advantages for faster, easier work . . . Optional fluid coupling absorbs shock loads . . . Easy field conversion for all crane, shovel and clam operations including the new, exclusive, Gar Wood Foundation Borer — the machine that bores and bells in one operation . . . See your dealer for details —

FOR LIFTING UP TO 40,000 LBS.

Use Gar Wood's heavy-duty, model 75BT, truck crane! . . . Optional power load lowering and all the other Gar Wood features. Specially designed chassis for speed and mobility.

GAR WOOD INDUSTRIES

GAR WOOD INDUSTRIES, INC.

Findlay Division • Executive Offices • Wayne, Michigan

F-531

lower light intensity met in the tunnel.

The planning and design of the tunnels were carried out under the supervision of the Netherlands government, and contracts for the first section of tunnel are being carried out by private contractors.

International briefs . . .

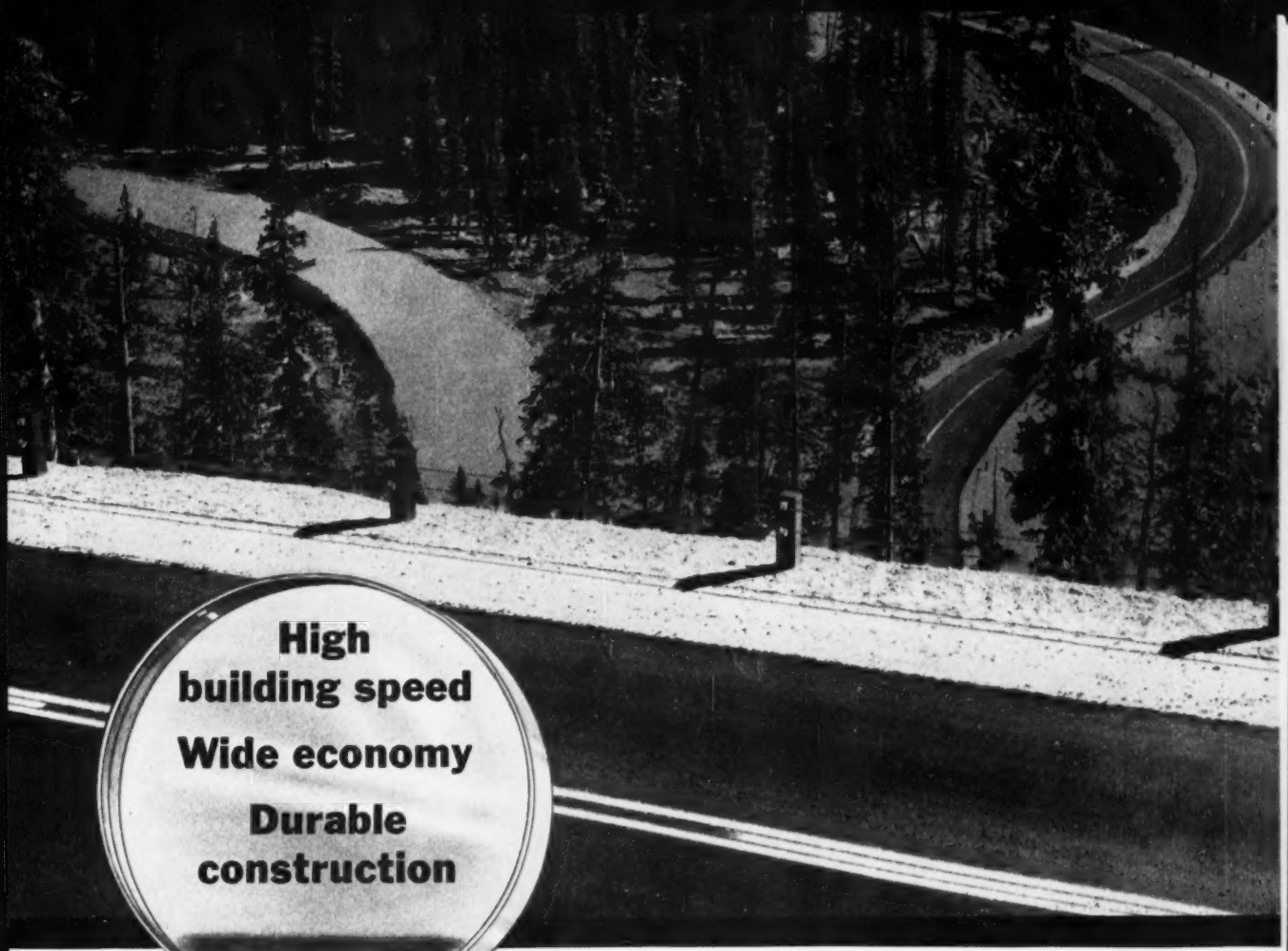
• **Cuban waterworks**—A preliminary agreement has been reached between Havana's municipal government and Cuba's Banco Nunez for loans to complete the $14-million enlargement and modernization of Havana's waterworks system. The expansion will add 100 mgd to the rapidly growing city's present water supply of 125 mgd.

• **Puerto Rican hospitals**—A $12.7-million hospital construction program has been recommended by the Puerto Rico planning board to the governor and legislature. Covering the period from 1955-1960, the plan includes construction of 14 health centers, 7 of which would be located in cities that now lack hospital facilities.

• **Egypt's record dam**—West German delegations are working with the Egyptian government on arrangements to construct what would be the world's largest hydro and irrigation dam on the Nile River south of Assuan (ENR April 16, 1953, p. 87). Planned for an installed capacity of more than 1,000,000 kw and storage of 100,000,000 acre ft, the project has excited great interest among German industrialists who now appear to have an inside track for the construction contracts. The U. S.'s TCA has conducted an aerial survey for the Egyptian government on the proposed site of the dam.

• **Sumatra's rice**—A joint venture to help increase Sumatra's rice production is being undertaken by Brown & Blauvelt, consulting engineers of New York, and the Utah Construction Co., San Francisco. The two companies have a survey team on the island working in close cooperation with Java's Ministry of Agriculture in order to prepare a report on irrigation and earthmoving necessary to develop large areas of the island for rice production.

• **Cairo airport plans**—Construction and expansion of airport facilities at Cairo, Egypt, have been announced by the director-general of Egypt's Civil aviation administration. Landing strips are to be expanded, a new terminal building is planned, and an observation tower is to be built.



Clues to a better road

■ For a better road . . . a smooth, glare-free, safe road . . . asphalt construction offers important advantages to road builders.

High building speed. Easier laying of asphalt, use of lighter and faster equipment, rapid setting of asphalt paving . . . all help speed road construction.

Wide economy. Faster jobs mean fewer man-hours and lower labor costs. Because local aggregate can be used, material costs are lower. Maintenance of asphalt roads takes a minimum of time, labor, and materials.

Durable construction. Asphalt and heavy aggregate, mixed, make strong road foundations. Top courses of asphalt, stone, and sand present long-wearing, waterproof surfaces.

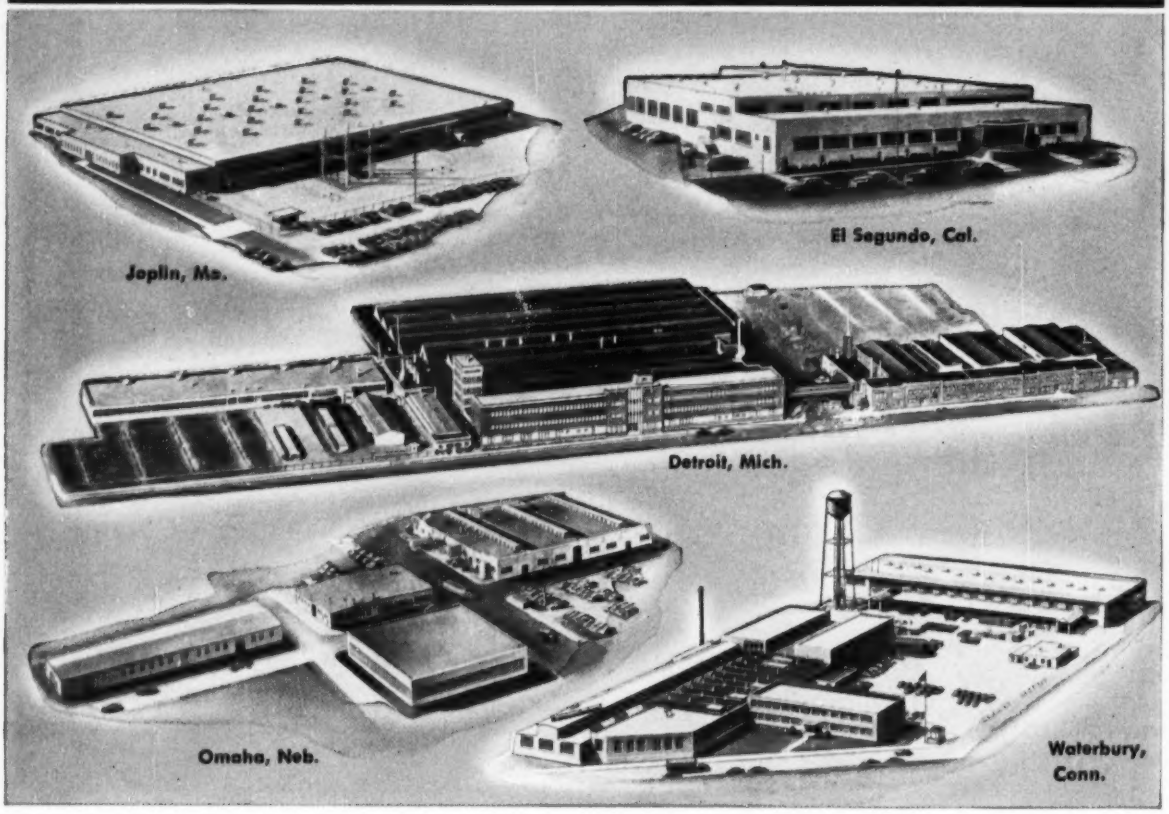
You add further to those road building advantages by using Standard Oil asphalt. With five asphalt-producing refineries located throughout the Midwest, Standard Oil makes the haul to your job a short one. Prompt, reliable shipments eliminate work delays. Freight costs are at a minimum. Standard Oil Asphalt Representatives are situated throughout the Midwest to give you "on-the-spot" service. Phone your local Standard Oil office. Or, write: Standard Oil Co., 910 So. Michigan Ave., Chicago 80, Ill.

STANDARD OIL
ASPHALT

STANDARD OIL COMPANY STANDARD (Indiana)

ONE OF A SERIES

You Get Many Benefits by Specifying VICKERS® Hydraulics



Unmatched Facilities

For Hydraulics Development, Design, Manufacturing and Application

In resources for research, design, development, manufacturing and application, Vickers is unmatched in the hydraulics field. The five plants shown above employ more than six thousand people. These plants are strategically located to best serve the diversified industries that use Vickers Hydraulics.

The large scope of these operations makes it economically practicable for Vickers to develop facilities that would be impossible under other circumstances. As a result, you get more for your money when you buy Vickers Hydraulic Equipment.

VICKERS
Incorporated
DIVISION OF THE SPERRY CORPORATION
1496 OAKMAN BLVD. • DETROIT 32, MICH.
Application Engineering Offices: ATLANTA • CHICAGO (Metropolitan) • CINCINNATI • CLEVELAND • DETROIT HOUSTON • LOS ANGELES (Metropolitan) • NEW YORK (Metropolitan) • PHILADELPHIA • PITTSBURGH • ROCHESTER ROCKFORD • SEATTLE • TULSA • WASHINGTON • WORCESTER

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

Berm shaper designed for canal work

A berm shaping machine for canal work was designed and made up by the South Gate, Calif., equipment yard workers and job personnel at Wellton, Ariz.

The machine itself is made chiefly from a Model 12 Buckeye ditcher and was used first as a pulling unit to tow our sub-grade guided canal lining slip-form during the paving of 20 mi of 2-ft bottom canal and laterals. At the completion of the lining operation, the job-designed and built scrapers were mounted on each side on the rear of the machine. The bank of this canal was completed to an elevation one foot above the lining. Top of the berm is 3 ft wide; side slope 1½ to 1.

The basic machine was constructed in South Gate under the direction of Isaac Rains and Larry Wicks. Bank sloping equipment was added by the project master mechanic, G. S. Van Landingham, and his crew. J. E. Ricker, Morrison-Knudsen Co., P. O. Box 801, Wellton, Ariz.

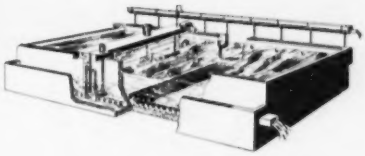
Air-driven axe cuts pile-pointing time

A pneumatic axe devised by employees at the Florence, Neb., material yard of the U.S. Corps of Engineers has resulted in a threefold gain in efficiency in pointing and heading piles. What's more, a hazardous operation has been made a safe activity in which accidents have become virtually nil.

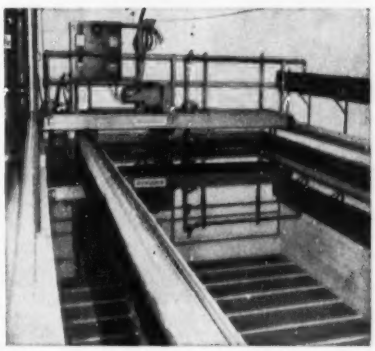
The technique uses an air hammer

Photos by Sidey

THE OLD AND THE NEW pile-pointing methods at U. S. Corps of Engineers material yard. Note cumbersome shin and shoe guards worn by axeman at left. Pneumatic pointer at right is aimed away from workman, reducing hazard.



Investigate the
AUTOMATIC BACKWASH RAPID SAND FILTER



Here is a sand filter which cleans itself—automatically—with no interruption whatever to the filtering operation. No shutdown or change-over is necessary while cleaning is in progress.

The secret lies in its special, compartmented filter bed and traveling backwash mechanism which automatically cleans one compartment at a time.

May be used for plant supply water or for waste water treating. Write for Bulletin 46-A-55.

HARDINGE
COMPANY, INCORPORATED
YORK, PENNSYLVANIA — 240 Arch St. — Main Office and Works
New York · Toronto · Chicago · Hibbing · Houston · San Juan (P.R.) · San Francisco

For the Best Service under the Worst Conditions

Chrome-Clad LUFKIN "Peerless" Engineers STEEL TAPE

An extra strong, ¼" wide Chrome-Clad line built up by a series of electroplatings — most rust and corrosion resistant — will not chip, peel or crack — easy to clean! Jet black markings bonded right to the line — can't wear off — easy to read against the chrome-white surface! Preceding foot number is repeated each inch or tenth.

These features add up to the Lufkin "Peerless" — a durable steel tape made for engineers. Available in 50, 100, 150 and 200 ft. lengths. Two finger rings furnished for use without the frame.

BUY LUFKIN 277 TAPES • RULES • PRECISION TOOLS FROM YOUR SUPPLY STORE

THE LUFKIN RULE CO., Saginaw, Michigan
132-138 Lafayette St., New York City • Barrie, Ontario

WISCONSIN-POWERED MARLOW "MUD HOG" Handles the Dirty Work

Power TO FIT THE JOB

Power TO FIT THE MACHINE

When there's dirty work to be done, you can depend on Marlow "Mud Hogs" to get in there and do it! You'll find them on construction jobs everywhere — pumping messy, heavy wastes and liquids which may contain sticks, stones and other trash.

All contractors' pumping needs are efficiently and dependably handled with just two types of Marlow Pumps — self-priming centrifugals for high capacity pumping and Mud Hogs for dirty work.

It is a source of pride to us that so many Marlow Pumps depend on Wisconsin Heavy-Duty Air-Cooled Engines for steady-going, hard-hitting power — power that matches the equipment in heavy-duty serviceability and low-cost maintenance.

You can't do better than to specify "Wisconsin Air-Cooled Engines" for your equipment . . . 4-cycle single-, 2- and 4-cylinder models, 3 to 36 hp.

MOST H.P. HOURS

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN

equipped with a four-inch frost blade that has been sharpened to simulate an axe head.

Army engineers claim several advantages for the air hammer. A pile can be shaped in 10 min.—a third of the time it takes to do the job with a regular axe. Any workman can turn out a creditable job with the air hammer, contrasted with the need for a skilled axeman when the older method is used. The air-driven blades need sharpening less frequently. The workman automatically aims the blade away from himself, thus reducing the accident factor.

By contrast, regular axe-pointing of the piles was so hazardous that special aluminum foot and shin guards had been devised to cut the accident rate. Clumsy at best, they virtually immobilized the wearer when—as is frequently the case around a waterfront material yard—there was mud on the ground.

Army engineers, extensive users of piles in their river stabilization work, estimate that the gadget saves $5,000 annually at the Florence yard.

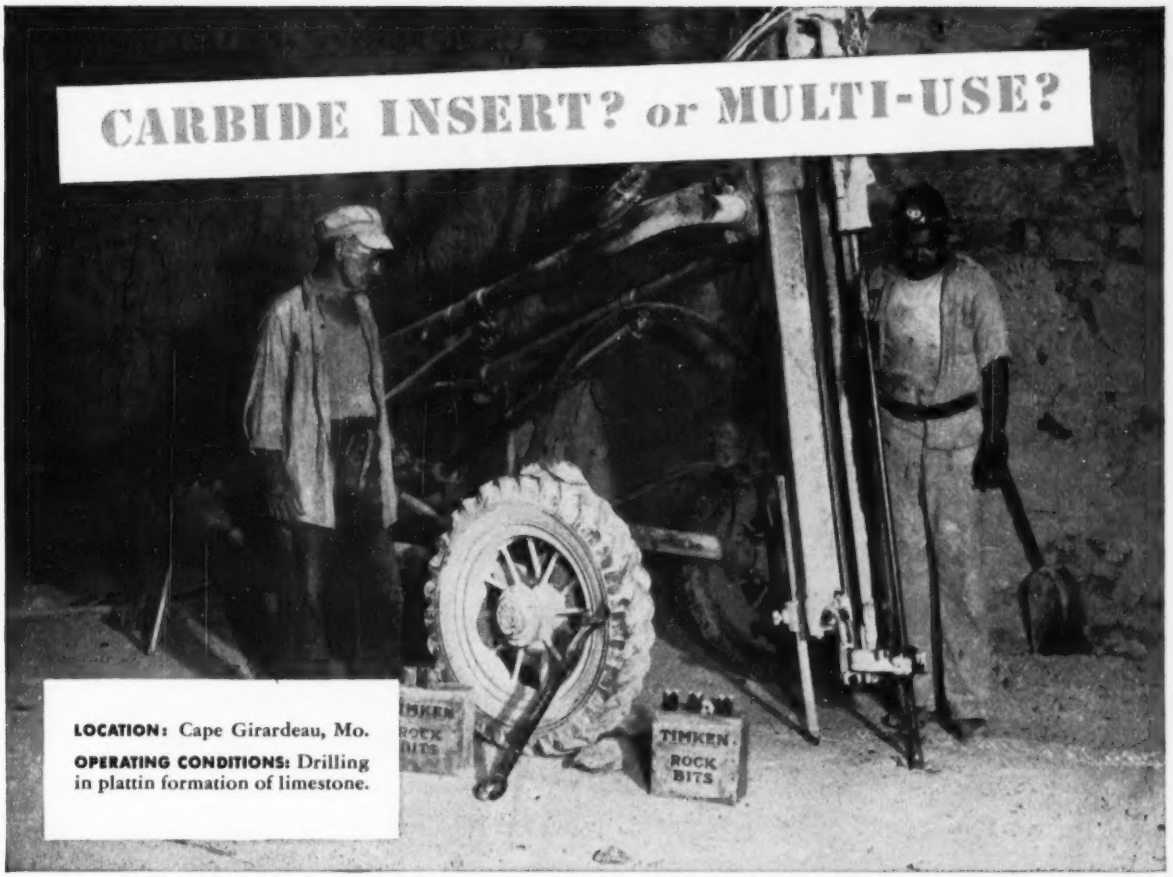
Simple spool mover saves sprained backs

Instead of transferring spools of wire by lifting and carrying or trying to direct them with a few well-placed kicks, employees of the du Pont Pompton Lakes Works, Pompton Lakes, N. J., developed a simple spool handler.

The device consists of a 14-in. piece of 1-in. dia pipe welded at a right angle to a piece of ¾-in. pipe approximately 40 in. long. With the shorter end inserted in the spool hole, the wire may be pushed or pulled from place to place.

(*Field & Office cont'd on page 80*)

SPOOL MOVER is back saver.



LOCATION: Cape Girardeau, Mo.

OPERATING CONDITIONS: Drilling in plattin formation of limestone.

Federal Materials Co. gets lowest cost per foot of hole in controlled limestone drilling tests with TIMKEN® multi-use bits

IN controlled drilling tests, Federal Materials Co. found Timken® multi-use bits gave lowest cost per foot of hole—outperformed other types of bits in plattin formation of limestone in pit and underground quarrying operations.

For ordinary ground, Timken multi-use bits are most economical. With correct and controlled reconditioning, they'll give the lowest cost per foot of hole when full increments of steel can be drilled.

But they may *not* be the best answer for all your drilling problems!

When the ground is hard and abrasive, Timken carbide insert bits give the highest speed. They're most economical for constant-gage holes, small diameter blast holes, extremely deep holes.

Most important of all, both Timken carbide insert and multi-use bits are interchangeable in the same thread series. A wide range of different Timken bits fit the same drill steel. You change bits quickly, easily as the ground changes—right on the job!

Both Timken carbide and multi-use bits are made from electric furnace Timken fine alloy steel and have special shoulder unions, originated by Timken, that protect threads from drilling impact.

To find out the bit type most suited to your drilling needs—whether multi-use, carbide insert, or both—call on the Timken Rock Bit Engineering Service. Write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

Timken threaded multi-use rock bit

Timken threaded carbide insert rock bit

...your best bet for the best bit ...for <u>every</u> job

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

RUGGED "Individuals

THAT'S THE BUCYRUS ERIE LINE OF 3/8 - TO 4 - YARD EXCAVATORS...

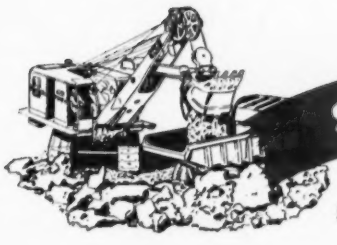
* **Each model** is *individually designed* all the way through from crawler treads to boom point sheaves for a definite size payload. Maximum stability and maximum strength are obtained without that extra weight which slows down the operating cycle or adds to power consumption.

That's because each part is built of tough special steels, developed especially for the individual duties involved. No parts are too small — strength is built in where you need it. No parts are too big — bulky deadweight is eliminated. This is Bucyrus-Erie *individual design.*

Because of *individual design* you can always be sure that your Bucyrus-Erie excavator will carry out the work it is rated for with speed, safety, and at low maintenance cost. Ask your nearby Bucyrus-Erie distributor to give you complete details. 16E53C

BUCYRUS-ERIE COMPANY

SOUTH MILWAUKEE, WISCONSIN



See Your Bucyrus-Erie Distributor

SHOVELS • DRAGSHOVELS • DRAGLINES • CLAMSHELLS • CRANES

Plan your structures in plentiful timber and use **TECO**

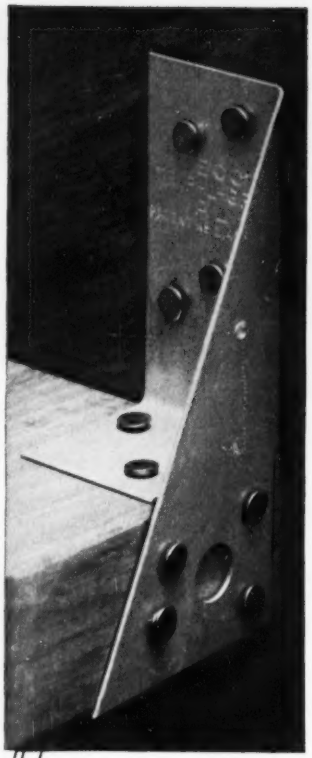
Trip-L-Grip

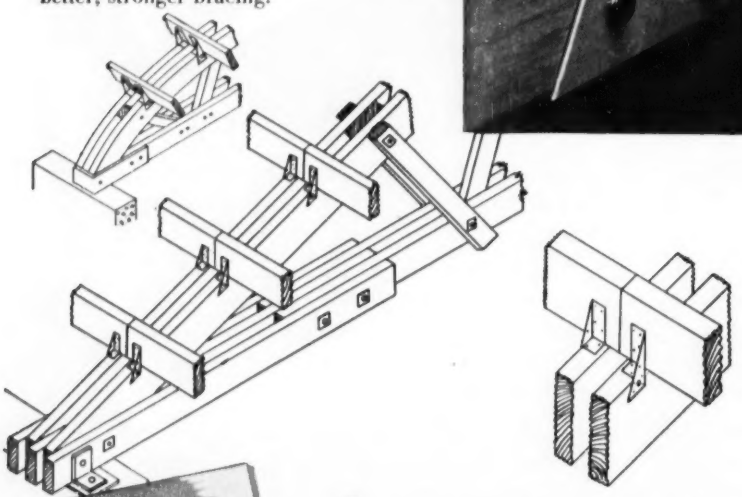
FRAMING ANCHORS

for stronger, more economical secondary connections, such as

RAFTERS to TRUSSES or PURLINS

Roof rafters and joists are securely anchored to purlins or truss chords with type A Trip-L-Grips. They eliminate toenailing uncertainties, expensive steel angles or ties and, on relatively flat or low pitch roofs, eliminate bridging between rafters. They serve as automatic spacers and speed up construction. They tie the whole roof together and provide better, stronger bracing.





This is only one of the many uses of Trip-L-Grips detailed and illustrated in the FREE booklet, "Aids for Better Homes and Other Wood Construction."

Free

TIMBER ENGINEERING COMPANY 1319 18th Street, N.W., Washington 6, D.C.
CHICAGO • NEW ORLEANS • IN CANADA: J. E. GOODMAN SALES, LTD., TORONTO

Please send FREE booklet, "Aids for Better Homes and Other Wood Construction."

NAME.....

FIRM.....

STREET..... Zone..... STATE..... CITY.....

ENR

Air-hammer guard prevents skinned knuckles

To prevent the hands and knuckles of the air-hammer operator from being "barked" when working in close quarters, a ring guard can be installed on pneumatic drills or hammers. Developed at the du Pont Chambers Works in Penns Grove, N. J., the ring is reported to furnish excellent protection without hampering the usefulness of the tool.

Star drill guard reduces flying chips

Designed to eliminate flying dirt or chips, the star drill guard is fashioned from the business end of a "plumber's helper" and two cellulose sponges fastened to the bit with a spring collar and setscrew. The springs are in sections and can be adjusted to fit any length of bit.

Workers at Du Pont's Belle Works in Belle, W. Va., who developed the accessory, found that dampening the sponges helps to prevent fires and keep down dust. The equipment eliminates the usual wet rag or hose.

22 HEILINERS

SPEED EARTHMOVING ON THE GARDEN STATE PARKWAY

NEW JERSEY

BIG earthmoving jobs like the $300,000,000 Garden State Parkway, and big-producing Heiliners just naturally go together. Heiliners combine all the advantages of fast loading, big capacity, plenty of power, high speed, and "tilting floor" positive forced ejection (the simplest and most efficient known!) with a host of other features that pay off in profit on any job.

- **8 HEILINERS for GEORGE M. BREWSTER & SON, INC.** of Bogota, N.J. are operating near Red Bank, N.J., moving over a million yards of sandy clay loam at a rate of 225-cu. yds. per hour per machine. Loading time per unit averages 45 seconds in 60 ft. and the 1200-ft. round trip time average is 3 to 3½ minutes.
- **5 HEILINERS for CONSTRUCTION AGGREGATES CORP.** of New York are moving 112-cu. yds. of sand per hour per unit on the section of the Garden State Parkway south of Morganville. Loading time averages 40 to 65 seconds in 200 ft., and average cycle time for the 8400-ft. round trip is 8 minutes.
- **4 HEILINERS for FRANK STAMATO & CO.,** of Lodi, N.J., are working near Eatontown and in Ocean County where the contractor had to meet a variety of tough conditions ranging from very wet to dry sand and gravel.
- **3 HEILINERS for J. F. CHAPMAN & SON** of Hillside, N.J., have contracts for grading, draining and structures near the north end of the Parkway working in material ranging from rock and shale to sand and gravel.
- **2 HEILINERS for REID CONTRACTING CO.** of Woodbridge, N.J., are operating near Toms River, and have a lot of tough conditions to meet such as a high water table, sand and gravel with clay and new haul roads.

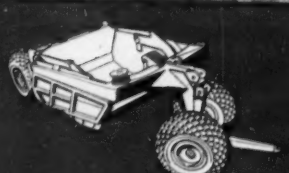
THE HEIL CO.

DEPT. 1113 3001 WEST MONTANA ST., MILWAUKEE 1, WISCONSIN

Factories: Milwaukee, Wis. — Hillside, N. J.

Sales Offices: New York, Union, N.J., Washington, D.C., Atlanta, Cleveland, Milwaukee, Detroit, Chicago, Kansas City, Denver, Dallas, Los Angeles, Seattle; Rio de Janeiro, Brazil

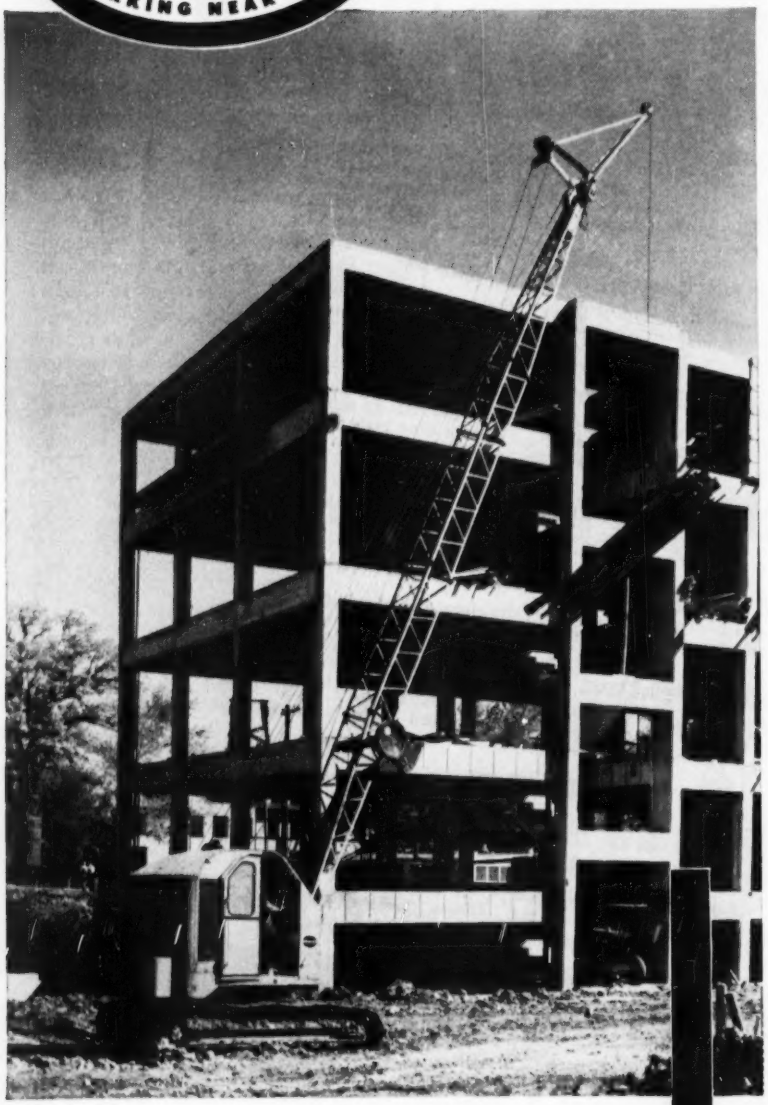
R-20



18 and 18-yd. Heiliner Scrapers — 50-yd. Heiliner Bottom Dump Wagon — 6, 9, 11 and 16-yd. Tractor Drawn Scrapers — Cable Power Control Units

THERE'S AN INSLEY WORKING NEAR YOU

ON A CONSTRUCTION PROJECT



The Insley Line includes excavators and cranes, 5 to 30 ton capacity—rubber or crawler mounted — gasoline, diesel or electric powered. There's an Insley working near you on a construction project.

INSLEY MANUFACTURING CORP. • INDIANAPOLIS
wholly owned subsidiary
THE MAXI CORPORATION, LOS ANGELES

EDUCATION

National Science Foundation to present 700 fellowships

More than 700 students with special abilities in science will be selected for a year of graduate study during 1954-1955 under the National Science Foundation's third annual graduate fellowship program.

These fellowships—ranging from $1,400 to $3,400 per year—will be awarded to American students to begin or continue studies at the graduate level in the engineering, mathematical, physical, biological and medical sciences. Winners may attend any accredited non-profit institution of higher education in the United States or abroad.

The rating system for selection of predoctoral fellows will be based on (1) test scores of scientific aptitude and achievement, (2) academic record, (3) written evaluations from faculty advisors and other observers. Postdoctoral applicants will not be required to take the examinations.

Application forms for the fellowships may be obtained from the Fellowship Office, National Research Council, Washington 25, D. C. Closing dates for receipt of applications are Dec. 15, 1953, for postdoctoral applicants, and January 4, 1954, for graduate students working toward advanced degrees in science. Selections will be announced by the foundation on or before next April 1.

Variety of construction curricula at Michigan

A further note on variety of construction curricula, earlier reported out of the American Society for Engineering Education meeting in Gainesville, Fla. (ENR July 16, p 87), is found at the University of Michigan, where civil engineering graduates may qualify for the degree of Master of Science in Engineering (Construction).

Curricula reported at Gainesville ranged from separate construction courses little resembling civil engineering (and embodying substantial amounts of employment on projects) to options within regular civil engineering courses.

The undergraduate program at Michigan lies in the latter category, the student in the construction option electing courses in construction methods and equipment, cost analysis and estimating, structural or highway design, and in a fourth appropriate subject, such as applied soil mechanics,

(*Continued on page 86*)

IN BUILDING CONSTRUCTION...

MEN AND METHODS

MAKE THE DIFFERENCE

WHEN YOU CHOOSE A BUILDER, it's important to consider his capacity for teamwork.

He must be able to work effectively with the other members of the building team – engineers, architects and owners. His organization must be skilled in the close teamwork needed to build soundly, on schedule and within the budget. His men and methods make the difference between waste and economy, between time lost and time gained in completing the job.

The George A. Fuller Company's belief in the importance of good teamwork is reflected in its record: 72 years of excellent relations with engineers and owners, thousands of varied construction projects satisfactorily completed throughout the U. S. and in many foreign countries.

Many engineers have profited by Fuller's ability to provide estimates, studies and "know how" to help the building team produce the best structure for the money. These services are available from the first stages of planning – and throughout construction in the field.

INDUSTRIAL PLANTS • HOSPITALS
LABORATORIES • OFFICE BUILDINGS
SCHOOL AND COLLEGE BUILDINGS
CHURCHES • HOTELS • BANKS
ARENAS • HOUSING • THEATERS
TERMINALS • STORES AND SHOPPING
CENTERS • BROADCASTING STUDIOS
MONUMENTAL BUILDINGS

GEORGE A. FULLER COMPANY
BUILDING CONSTRUCTION

Sign of Leadership in Building Construction

GEORGE A. FULLER COMPANY

NEW YORK • BOSTON • CHICAGO • PITTSBURGH • WASHINGTON • ATLANTA • LOS ANGELES

How the best product in its field has been made still better

Not overnight, of course—but by a series of improvements gained through research and development resulting in *modernized* cast iron pipe. Tougher, stronger, tuberculation-proof pipe with sustained carrying capacity. Centrifugally cast and, when needed, centrifugally cement-lined.

All of our member companies have centrifugal casting facilities for producing tougher, stronger *modernized* cast iron pipe. All can supply this pipe with cement lining centrifugally applied, resulting in sustained carrying capacity, reduced friction loss and lower pumping costs.

If you want the most efficient and economical pipe ever made for water distribution, your new mains will be laid with *modernized* cast iron pipe with either bell-and-spigot or mechanical joints. Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 122 So. Michigan Ave., Chicago 3.

CAST Q IRON

The Q-Check stencilled on pipe is the Registered Service Mark of the Cast Iron Pipe Research Association.

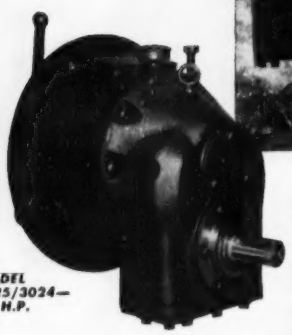
Modernized **cast iron**

This cast iron water main, uncovered for inspection, is in its 106th year of service in Boston, Mass.—one of more than 45 cities with century-old water or gas mains in service.

pipe

for Modern Waterworks Operation

S-N REDUCTION GEARS



MODEL 2225/3024—40 H.P.

SPECIFIED AS
ORIGINAL EQUIPMENT
ON HIGHLY MOBILE DIXIE CRANES

Designed for high speed operations that require a mobile unit, these three-eighths yard bucket Dixie Cranes — made by the Freshwater-Smith Machine Company, Ft. Pierce, Florida — are equipped with S-N Heavy Duty Herringbone Reduction Gears as original equipment in order to insure **maximum versatility** and the **smooth transmission** of **full power** from engine to load — smoothly — and at a minimum cost.

These rugged, compact S-N Reduction Gears are built for grueling, continuous operations with all types of engines from 40 H. P. units to 775 H. P. giants! They can be installed as original equipment or for repowering of pumps, shovels, generators, compressors and all types of dredging and ditching equipment. Available in a broad range of reduction ratios — of 1.5:1 up to 4:1. Our engineers will be glad to specify the best unit for maximum performance on your equipment. Write today for detailed catalog sheets. Address Industrial Division.

SNOW-NABSTEDT
Transmission Engineers
FOR NEARLY HALF A CENTURY
THE SNOW-NABSTEDT GEAR CORP., HAMDEN, CONN.

DRILLING CONTRACTORS

Diamond and Shot Core Borings
Dry Sample Borings
Grout Holes and Pressure Grouting
Foundation Testing for Bridges, Dams and other Heavy Structures

Manufacturers, also of Diamond Core Drilling Machines and complete accessory equipment, including all types of Diamond Drilling Bits. Ask for Bulletin 320.

SPRAGUE & HENWOOD, Inc.
Dept. E, Scranton 2, Penna.

The BELMONT IRON WORKS

Engineers — Fabricators — Erectors
Contractors — Exporters
Cable address—Beliron
STRUCTURAL STEEL
BUILDINGS & BRIDGES
RIVETED — ARC WELDED
Shops: Eddystone, Pa.—Philadelphia, Pa. Royersford, Pa.

Main Office
22nd St. & Washington Ave.
Philadelphia 46, Pa.

AISC

New York Office
44 Whitehall St.,
N. Y. 4, N. Y.

legal aspects of engineering, or economics of enterprise.

The graduate program, which has been developed with the aid and advice of the Michigan Chapter, Associated General Contractors, requires a B.S. in C.E. for admission. Courses include foundations and underground construction, personnel administration, management-union relations and fundamentals of accounting, as well as other courses in engineering and business administration.

Prof. Glen L. Alt is in charge of the construction curriculum at the University of Michigan.

Open new classes for building department heads

The first professional training classes in building department administration are under way in Los Angeles under joint sponsorship of the University of Southern California and the Pacific Coast Building Official Conference.

Two courses are on an undergraduate level. They will take up introductions to building department administration and the uniform building code. The third course—for graduate work—will cover the history of building regulations, building department organization, fees and valuation, report writing, budget preparation and records, public relations and legal aspects.

Two Los Angeles County officials are instructors for the courses—Fred N. Andrus, structural engineer, and Clyde N. Dirlam, building official.

Similar classes—on a 2-3 day trial basis—will be sponsored byWashington State College and Utah State University as a preliminary step to establishing fully accredited courses in this department.

Four-year housing courses introduced at two schools

The first full four-year coureses in housing—leading to bachelor's degrees in housing administration—have been introduced at Morgan State College in Baltimore, Md., and Howard University in Washington, D. C.

At Morgan State College the program is centered in the economics department. Courses include economic, social and political aspects of housing; business organization and administration; real estate law; principles and practices of property management; dwelling plan and construction.

The Howard University plan, offered by the department of business administration, includes studies of land use and urban redevelopment and planning; structural design and planning;

Weston Power Plant, Rothschild, Wis.—Engineers: Pioneer Service & Engineering Co., Chicago, Ill.—Owner: Wisconsin Public Service Corporation, Milwaukee, Wis.

WELLPOINTS ELIMINATE SHEETING...

...on power plant foundation

Construction costs took a nose dive when the engineers on the Weston Power Plant constructed an earth-fill cofferdam and predrained the wet excavation with a Moretrench Wellpoint System.

> Confidence in the efficiency of Moretrench Equipment enabled the pumping contractor, American Dewatering Corporation, New York, *to guarantee results in a limited period of time.*

Three days after pumping started, 16′ of water had disappeared and they were excavating "in the dry" at a considerable saving of time and money. During flood stage of the river, 25′ of water were handled perfectly.

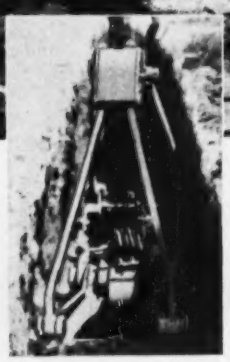
For results like this on your wet work, call our nearest office!

MORETRENCH CORPORATION

90 West St.	4900 S. Austin Ave.	7701 Interbay Blvd.	315 W. 25th St.	Rockaway
New York 6	Chicago 38, Illinois	Tampa 9, Florida	Houston 8, Texas	New Jersey

Top notch efficiency in

DEEP DOWN SPOT DIGGING...



Tangible, valuable features contribute to the exceptional trench excavating of

OWEN BUCKETS

Basic features include: *correctly designed shells* for easy penetration and discharge—*removable counterweights* to help force the shell into material and the block and tackle principle of multiplying closing power.

Others are *low headroom* that makes handling easy—*low center of gravity* that aids in placing the bucket when below the line of vision and *side cutters* which cut clearance for the bucket and aid in maintaining parallel trench walls.

BUCKETS AND GRAPPLES
Write for Catalog

THE OWEN BUCKET CO.
9210 Breakwater Avenue • Cleveland, Ohio

building construction and contracting procedures; building enterprise and housing finance; building laws and codes.

One year less needed for advanced degrees

Under a new Cornell University program, civil engineering students will be able to obtain advanced degrees in law, business-public administration or regional planning one year sooner than heretofore.

Formerly, students had to complete the five-year engineering course—then work three more years for a law degree or two more years for a master's degree in other fields. Now they will begin the combined program in the fifth year of engineering school by selecting some courses that are acceptable to the chosen division, others that meet requirements in both fields he is studying.

Education briefs . . .

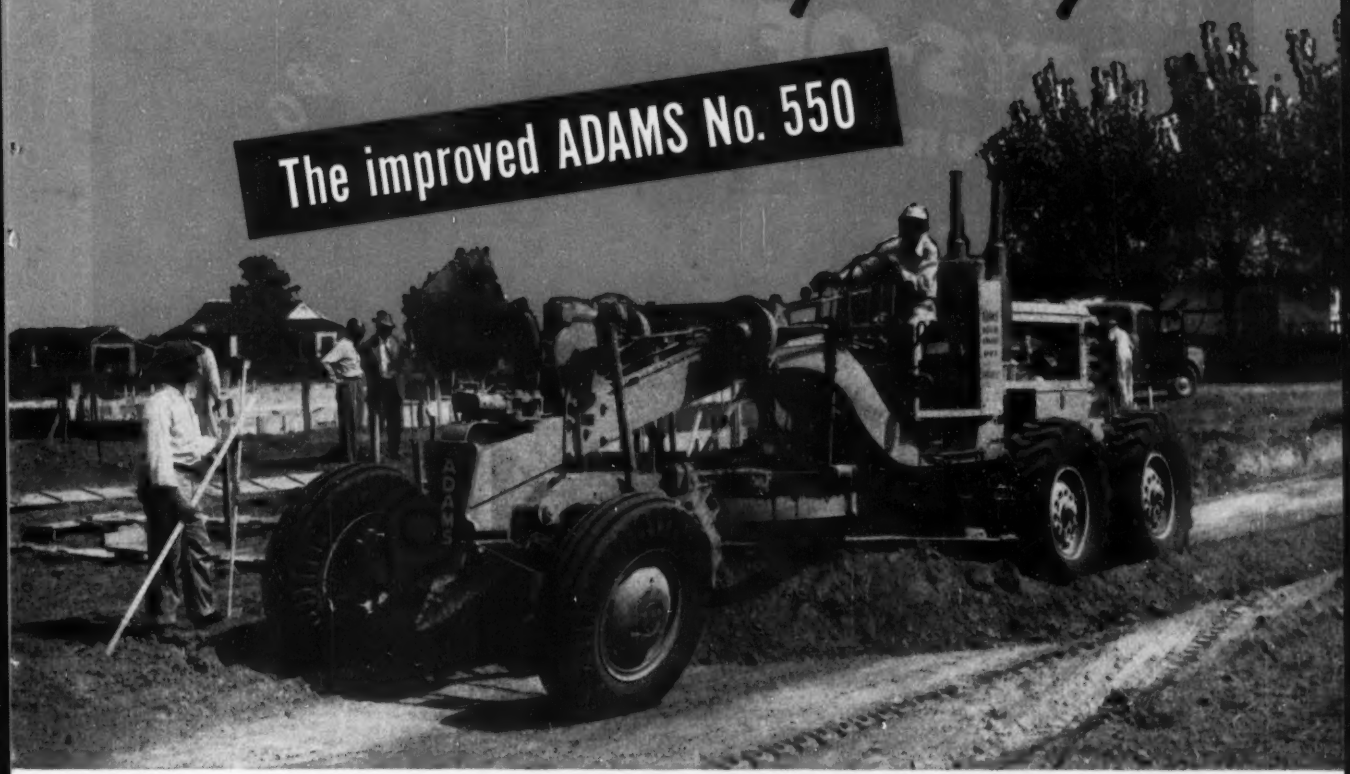
• **Montana memorial**—An engineering scholarship has been established at Montana State College as a memorial to the late William M. Cobleigh, former engineering department dean who served 54 years on the faculty. First award is scheduled for 1954. Montana groups cooperating in the fund drive include the Society of Engineers, American Society of Civil Engineers, American Water Works Association and the Sewage and Industrial Wastes Association.

• **Construction courses**—New York University's Division of General Education is offering a revised program of adult evening classes in building construction, architecture and the mechanical equipment of buildings. The study unit includes a dozen 15-week courses for draftsmen, designers, architects, building construction superintendents and other persons working in construction or fields related to it.

• **Road scholarships**—Twenty Kentucky high school graduates have been awarded engineering scholarships at the University of Kentucky under a program sponsored by the state's department of highways. Winners will work one full year for the highway department following graduation—plus each summer until that time. Fourteen of the scholarships will be supported by the department itself; five more, by the highway industry; the remaining one, by the university's alumni association.

Headed for New Popularity

The improved ADAMS No. 550



A Heavy-Duty 100 H.P. Grader with New Constant-Mesh Transmission

You have only to check the new and improved features that characterize the Adams No. 550 Motor Grader to know that here is one of the most efficient and versatile machines you can possibly own:

- **Powerful Diesel Engine:** Lots of lugging ability—easy to start—economical, dependable . . . Rubber mounted for vibration-free operation.

NEW **Constant-Mesh Transmission:** Quick, easy gear shifts . . . Helical gears—all on roller bearings—insure smooth, long-life performance . . . Finest transmission ever put into a motor grader.

- **8 Forward Speeds:** More working speeds and a higher travel speed (25 mph) than other graders . . . Save time—increase work production.

NEW **4 Reverse Speeds:** Up to 13.2 mph . . . Speed work on many jobs—backing between forms, bucking snow, etc.

NEW **"Creeper" Gears:** Optional in transmission at nominal cost . . . Provide 3 extra-low speeds—.22 to 1.76 mph . . . Valuable where slow-speed operation is desirable.

- **Positive, Easy-Working Controls:** Dependable, accurate adjustments—easy, natural steering.

- **Big, Comfortable Cab:** Roomy convenience for maximum operator efficiency—2-way adjustable seat.

NEW **Double-Action Braking System:** Operates on wheels and transmission—quick, safe stops with less pedal effort.

NEW **Foot Accelerator:** Drive grader like truck—great in traffic. Use it or hand throttle when working.

Discover how the new No. 550 will step up production and cut costs. See your local Adams dealer or write—

J. D. ADAMS MANUFACTURING CO. • INDIANAPOLIS, IND., U.S.A.

Make your next motor grader an

ADAMS

EVERY FEATURE OF THE BARBER-GREENE 848 PLANT WAS DESIGNED TO INCREASE TONNAGE PRODUCTION

There is nothing to equal the constant, low-cost, top-capacity production of the 848 plant that provides 80 to 140 tons per hour of the finest bituminous mix.

Its portability means less moving time. Its separate components mean less set-up time. Its automatic, interlocked operation assures accuracy and means less loss due to the human element.

Its simplicity of operation and quality construction mean less down time. Its unique simple sampling means less interrupted time.

Its adaptability to all types of mix, including stabilized mixes, means more profitable production.

See your B-G Distributor for complete information on the high capacity 848 Bituminous Plant.

Barber-Greene

B G

Aurora, Illinois, U. S. A.

OBITUARIES

Marvin H. Day, 88, engineer and son of the man in charge of engineering when the Union Pacific Railroad was built, died Oct. 29 at Iowa City, Iowa. He was graduated from the State University of Iowa, and later did general engineering for the Union Pacific and Rock Island Railroads.

Oren Reed, 57, construction engineer for TVA at its Willow Creek steam plant, died Oct. 29 in Chattanooga, Tenn. He had been with TVA since 1934 and had been construction engineer on the Watts Bar, Fontana Dam, Watauga Dam and Widows Creek plant projects.

Elizabeth M. Herlihy, 73, authority on city planning, flood control researcher, and from 1935 to 1950 chairman of the Massachusetts Planning Board, died at Everett, Mass., Oct. 28. For many years she was a member of the Interstate Flood Control Commission, and was the first woman to be elected to the American City Planning Institute. Her work for the city of Boston covered decades of service.

The first employee of the Morrison-Knudsen Construction Co., founded in 1912, died in Proctor, Vt., Oct. 21. He was **Morris Olson,** 71, a former superintendent of the company and nephew of one of the co-founders, Morris H. Knudsen. Olson was known throughout the M-K organization as "Em-Kayan Number One."

John A. Cartwright, 55, of Greencastle, Ind., director of Indiana public works, died at Delphi, Ind., Oct. 27.

John T. Duffy, who retired in 1937 as assistant chief operating engineer of the water bureau in Chicago, died Oct. 31. He had been employed in the bureau for 37 years.

Russell S. Conrad, 60, retired assistant district engineer of the Pennsylvania highway department, died at Harrisburg Oct. 28. He was a graduate of Bucknell University, and took the highway post 32 years ago.

H. O. Day, 59, vice-president and founder of the Daybrook Hydraulic Corp., Bowling Green, Ohio, and the Micro Mara Corp., Upper Sandusky, died Oct. 18. He was the designer of a bridge erector used by the Army in World War II to construct bridges in Italy and France.

Bruning COPYFLEX "20"... ideal whiteprinter for the smaller office

Get prints in 5 minutes!

There's no waiting for prints with a COPYFLEX "20" in your office.

Engineers, designers and architects who require prints in moderate volume line up solidly behind the low-cost Bruning COPYFLEX "20" whiteprinter. It takes cut or roll paper stock, quickly turns out ready-to-use prints of drawings and office forms up to 42 in. wide — *at an average cost of less than 2¢ per square foot.*

Here's why the COPYFLEX "20" is ideal:

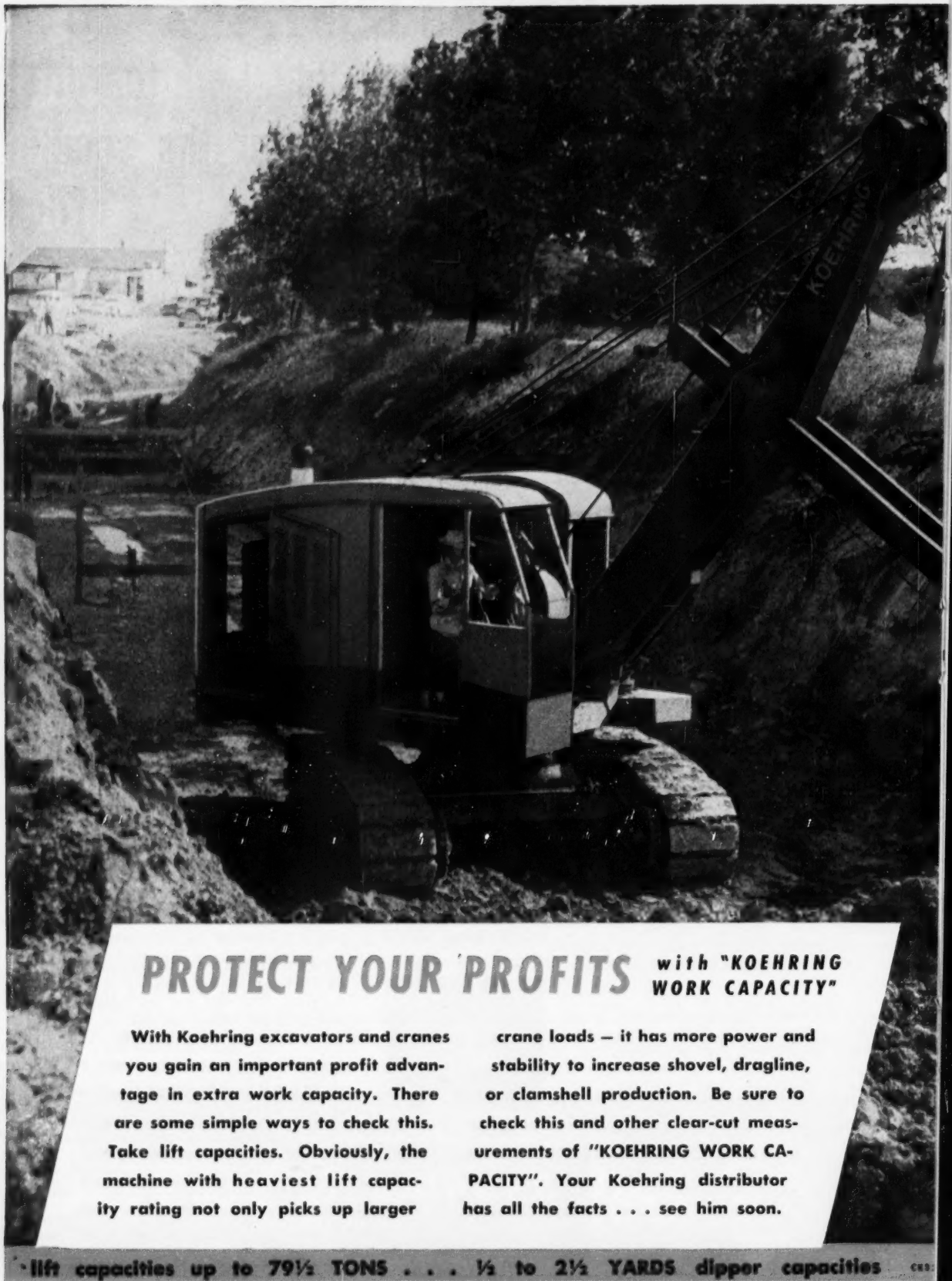
LOWEST-PRICED copying machine in its class
TWO CENTS A SQUARE FOOT average operating cost
SPEEDS DELIVERY of ready-to-use prints
NO FUMES to be exhausted . . . no expensive plumbing or ventilation system required
OPERATES ANYWHERE — simply connect to a standard 115-volt a-c power line
NO TRAINING NEEDED to operate; a 5-minute explanation suffices

Model "20" COPYFLEX

• These are only a few of the facts and figures on hand to prove that the *low-cost* Bruning COPYFLEX "20" can give you better prints faster, for less money. Just mail the coupon below for details on the COPYFLEX "20". B-3-2A

BRUNING
Specialists in copying since 1897

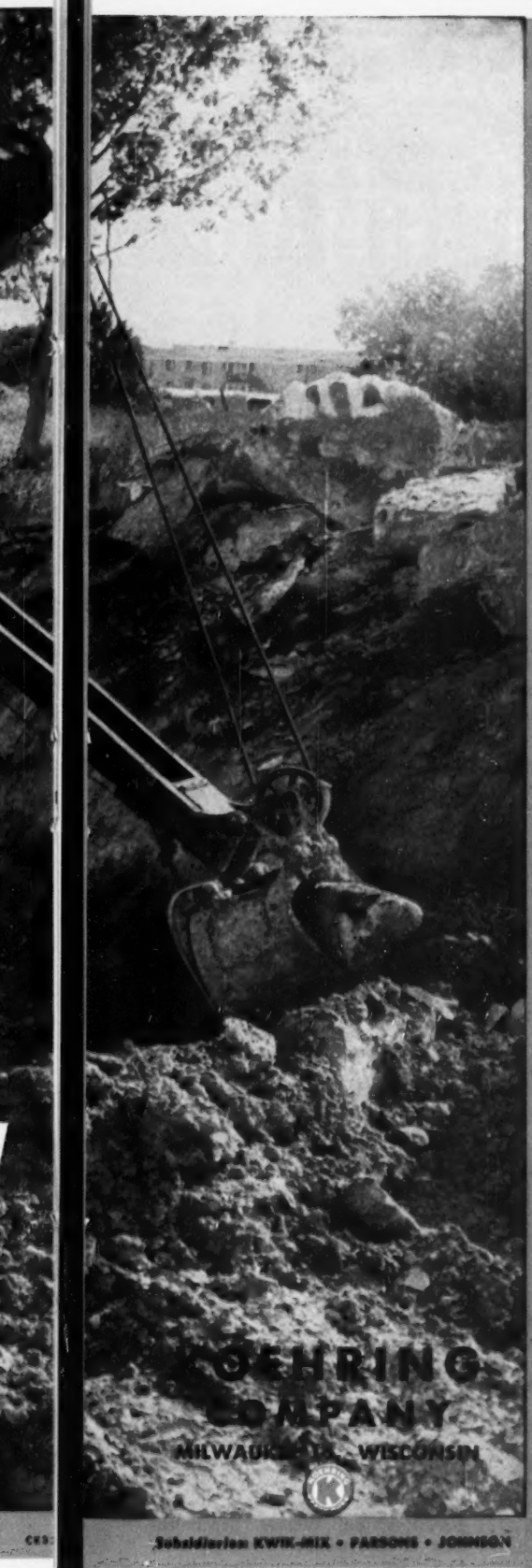
CHARLES BRUNING COMPANY, INC.
Dept. G 113 4700 Montrose Ave., Chicago 41, Ill.
☐ Send me free booklet on COPYFLEX "20".
☐ I'd like to see the COPYFLEX "20" demonstrated.
Name ..... Title .....
Company .....
Street .....
City ..... Zone .... State .....
OFFICES IN PRINCIPAL CITIES



PROTECT YOUR PROFITS with "KOEHRING WORK CAPACITY"

With Koehring excavators and cranes you gain an important profit advantage in extra work capacity. There are some simple ways to check this. Take lift capacities. Obviously, the machine with heaviest lift capacity rating not only picks up larger crane loads — it has more power and stability to increase shovel, dragline, or clamshell production. Be sure to check this and other clear-cut measurements of "KOEHRING WORK CAPACITY". Your Koehring distributor has all the facts . . . see him soon.

lift capacities up to 79½ TONS . . . ½ to 2½ YARDS dipper capacities



50 to 125 CU. YD. Johnson Roadbuilders Bins

Flexible All-Welded Roadbuilders Bin gives you a portable batch plant for 2, 3 or 4 aggregates, or converts to transit-mix (shown) or central-mix plant for bulk cement and 2 or 3 aggregates. Can be equipped with 1 or 2 multiple material Hi-Speed Batchers, size 34 Roadbuilders Batcher, or truck-mixer charging batcher in 2, 3 or 4-yd. sizes. Bin available with 2, 3 or 4 compartments, 50 to 125 cu. yds. Also: silos, elevators, buckets.

C. S. JOHNSON *(Koehring Subsidiary)*
Champaign, Illinois

7-SECOND DISCHARGE with Kwik-Mix 11-S

Saving important seconds on every batch of concrete, tilted Flow-Line Discharge Chute pours full 12.1 cu. ft. batch in 7 seconds. Kwik-Mix 11-S Dandie® also has side or end discharge, 2 or 4 wheels, and special tower attachment. Other sizes: 3½-S to 16-S. Also check Kwik-Mix bituminous, tilt and non-tilt plaster-mortar mixers . . . and Moto-Bug® (power wheelbarrow) shown here. Ask your Kwik-Mix distributor for all facts.

KWIK-MIX *(Koehring Subsidiary)*
Port Washington, Wis.

17½ FT.-PER-MIN. Parsons 202 Trenchliner®

On utility, drainage and irrigation trenching, you can dig up to 17½ ft. per min., 13 to 31 in. wide, in depths to 6 ft. with this 202 wheel-type Trenchliner. It has: square or round-bottom buckets; quick-change bucket fronts with cutting lips or "Tap-In" teeth; 16 or 20-in. crawler shoes; gas or diesel engine. Tile box and chute optional. Also check 215 wheel-type; 3 big ladder-types, full crawler mounted; utility Trenchliner on rubber.

PARSONS *(Koehring Subsidiary)*
Newton, Iowa

T76REV.

FOR COMPLETE PROTECTION

FROM THE WET • GREASE • OILS • ORDINARY ACIDS

TOWER'S

FISH BRAND

*NEOPRENE

. These sturdy, durable, 100% DuPont **NEOPRENE** garments give that extra service to those who require protection from greases, oils, and most acids. There is a TOWER protective garment especially adaptable for every type of industrial activity. We will be glad to recommend the garment which best meets your individual requirements.

*A chemical rubber product of the DuPont Company

For folder of styles and detailed information write Department ER.

NEOPRENE RUBBER

TOWER'S FISH BRAND

A. J. TOWER CO.

24 SIMMONS ST. BOSTON, MASS.

TOWER'S ARROW BRAND

---

you play it **SAFE** with **Safety-Pulls**

Just as important as the time- and labor-saving advantages of Coffing Safety-Pull Ratchet Lever Hoists is the way each one protects your men from injury . . . your equipment from damage. Here's why:

Load cannot slip even if handle is accidentally released — because of dual Ratchet and Pawl principle, developed by Coffing and an outstanding Coffing advantage for over a quarter of a century.

Load is held positively at all times — there is no friction brake to slip or freeze.

Hooks will not break or straighten out.

"Safety-valve" handle will bend before any other part of hoist gives way.

Safety-Pulls are single-chain tested at 100 percent above warranted, rated capacity.

Find out more about how Coffing Safety-Pulls provide extra protection on the job. Write for Bulletin EN11SP.

COFFING HOIST COMPANY

ORIGINATORS OF RATCHET LEVER HOISTS

DANVILLE, ILLINOIS

Coffing Safety Pull Ratchet Lever Hoists
2 coil chain models, ¾ and 1½ tons
10 roller chain models, ¾ to 15 tons

Quik-Lift Electric Hoists
Hoist-Alls • Mighty-Midget Pullers
Spur-Geared Hoists
Differential Chain Hoists
I-Beam Trolleys
Load Binders

BOOKS

New engineering books

WELDING ALUMINUM—185 pp. Reynolds Metals Company, 2500 South Third St., Louisville 1, Ky. $1.00 (limited free distribution).

STRUCTURAL SHOP DRAFTING: VOLUME TWO—320 pp. American Institute of Steel Construction, 101 Park Ave., New York 17, N. Y. $3.00.

QUALITY CONCRETE—218 pp. The Concrete Association of India, 1, Queen's Road, Bombay, India.

MEASUREMENTS OF THE STRUCTURAL BEHAVIOR AT FONTANA DAM, Technical Monograph No. 69. 332 pp. Tennessee Valley Authority, Divisions of Engineering and Construction, Knoxville, Tenn. $4.75.

FONTANA PROJECT HYDRAULIC MODEL STUDIES, Technical Monograph No. 68, 384 pp. Tennessee Valley Authority, Knoxville, Tenn. $5.00.

PUBLIC GROUNDS MAINTENANCE HANDBOOK—By H. S. Conover, Division of Reservoir Properties, Tennessee Valley Authority. Copies available from the Tennessee Valley Authority, Old Post Office Building, Knoxville, Tenn. $5.00.

A SYMPOSIUM ON PRESTRESSED CONCRETE STATICALLY INDETERMINATE STRUCTURES—180 pp. Cement and Concrete Association, 52 Grosvenor Gardens, London, SW 1, England. Price 25s.

MANUAL OF TRAFFIC ENGINEERING STUDIES—Second Edition. 278 pp. Accident Prevention Department, Association of Casualty and Surety Companies, 60 John St., New York 38, N. Y. $3.75.

Reports and pamphlets

INDUSTRIAL WASTE SURVEYS OF TWO NEW ENGLAND COTTON FINISHING MILLS—New England Interstate Water Pollution Control Commission, 73 Tremont St., Boston 8, Mass.

SURVEY OF ANTIMALARIAL AGENTS—Public Health Monograph No. 9. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. $1.25.

SYMPOSIUM ON CONDITIONING AND WEATHERING—ASTM Special Technical Publication No. 133. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. $2.25.

STRESS ANALYSIS AND DESIGN OF STEEL COLUMNS—Bulletin 129, Texas Engineering Experiment Station, College Station, Tex.

RESOURCES FOR TOMORROW—The Engineer's Stewardship. By Robert F. Legget. The Sixth Wallberg Lecture, Faculty of Applied Science and Engineering, The University of Toronto, Toronto, Ont.

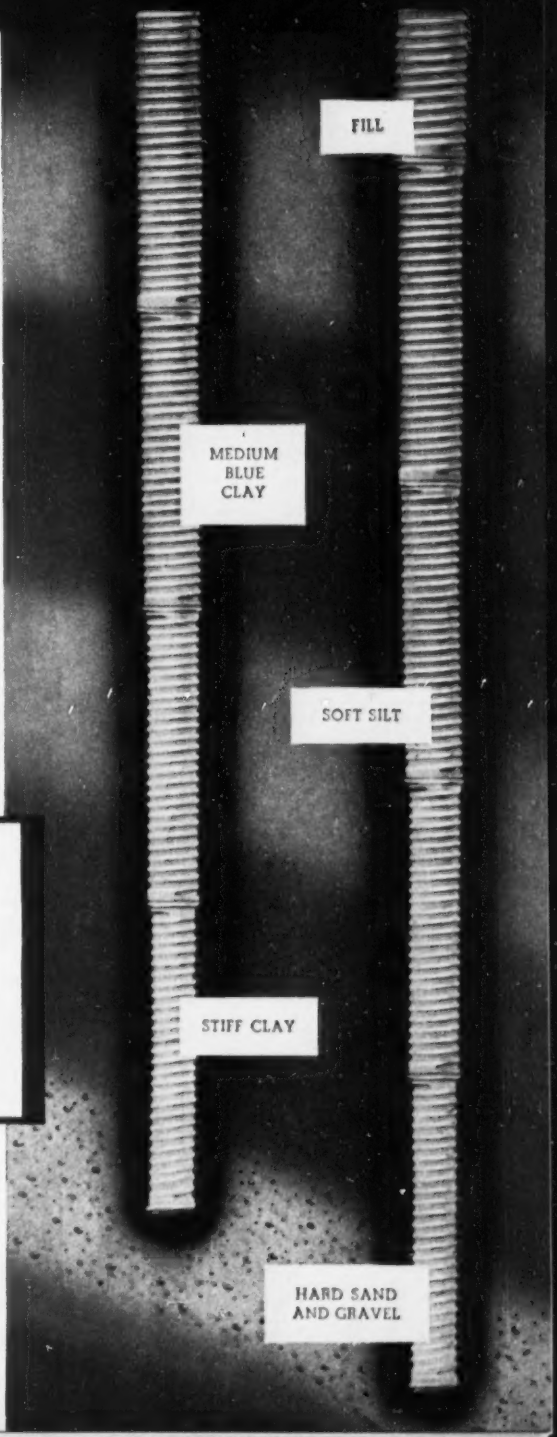
REPORT ON SCHOOLS OF PUBLIC HEALTH IN THE UNITED STATES—Public Health Service, U. S. Department of Health, Education, and Welfare. Superintendent of Documents, Washington 25, D. C. 35c.

Number three of a series . . . . ADVANTAGES OF RAYMOND CONCRETE PILES

uniform bearing capacity

THE COMPLETE FLEXIBILITY of Raymond Concrete Piles as to length permits all piles to be driven to a uniform resistance regardless of variations in depths of bearing soils. Raymond Piles are available in an endless variety of lengths through combining step-taper sections of different lengths or joining step-taper sections with pipe or wood lower sections. Because the piles are cast-in-place, time is saved (and cost reduced) by eliminating the driving of test piles to predetermine lengths, as well as eliminating the delay due to casting and curing of precast piles.

RAYMOND STEP-TAPER PILES, AVAILABLE IN SUITABLE LENGTHS, ARE DRIVEN TO UNIFORM RESISTANCE AND BEARING CAPACITY REGARDLESS OF SOIL CONDITIONS.



RAYMOND CONCRETE PILE CO.

140 CEDAR STREET • NEW YORK 6, N. Y.

Branch Offices in Principal Cities of the United States, Central and South America

RAYMOND'S DOMESTIC SERVICES

Soil Investigations • Foundation Construction
Harbor and Waterfront Improvements
Prestressed Concrete Construction
Cement-mortar Lining of Water, Oil and Gas Pipelines In Place

RAYMOND'S SERVICES ABROAD

In addition to the above, all types of General Construction.

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M E SCIORRA, F S. DEMBEK, Reports.
J. H. WEBBER, M R. ROESSLER, E R. HUBER, Statistics.

NEW ENGLAND

BID ASKED—HEAVY CONSTRUCTION

† **Mass., Westfield**—ADMINISTRATION BUILDING, etc—B.A. On Or About 11/24—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, repairing administration, maintenance, and supply bldgs., ammunition storage, and fire and crash truck station, Barnes Field, ENG-19-016-54-4. Under $20,000.

† **R. I., Newport**—B.A. 11/24—P. Wks. Dpt., Officer in Charge Constr., Naval Station, Newport, repairing breakwater wharf, approx. 6,624 bd. ft. decking, fender piles, guard rail, etc., South Fueling Pier, Melville, NOY 81089, Spec. 40113. Plans deposit $10.

R. I., **Providence**—B.A. 11/25—State of Rhode Island, and Providence Plantations, Blackstone Valley Sewer Distr. Comn., State House, Providence, Contr. 25, Bucklin Point Sewage Treatment Plant and Omega Pumping Station alterations and addn., East Providence. $60,000. Plans deposit $25. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., engrs. CD 12/23.

† **Connecticut**—B.A. 11/27—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., maintenance dredging in Norwalk Harbor, Serial No. CIVENG-10-016-54-13 CD 11/24/43.

† **Me., Limestone**—GARAGES—B.A. 11/27—Contracting Officer, Limestone Air Force Base, 4 single house garages, Limestone Air Force Base. CD 9/19/51.

▲† **Mass., Chicopee Falls**—LABORATORY—B.A. 12/8—U. S. Eng., 857 Commonwealth Ave., Boston, reconnaisance technical laboratory Westover Air Force Base, ENG-19-016-54-44. $1,200,000. Plans deposit $25, refundable. Samuel Glaser Assoc., 105 Newbury St., Boston, archts. CD 10/29.

BIDS ASKED—BUILDINGS

Mass., Greenfield—SCHOOL—B.A. 11/24—At office T. Cranston Albro III, archt., 4 Court Square, Greenfield, parochial school addn., Holy Trinity School, for R. C. Diocese of Springfield, Most Rev. Christopher J. Weldon, Chancery Office, 62 Elliot St., Springfield, Mass. $300,000. Plans deposit $25, refundable.

Vt., Castleton—CLASSROOM and SCIENCE—B.A. 11/24—State, Municipal Council, State Office Bldg., Montpelier, classroom and science bldg., Castleton State Teachers College. $300,000. Plans deposit $50. Milton L. Crandell, 10 Broad St., Glens Falls, N. Y., archt.

▲ **Mass., Brighton**—LAW SCHOOL—B.A. 11/25—At office Maginnis & Walsh, archts., 126 Newbury St., Boston, law school, Chestnut Hill, Commonwealth Ave. and Chestnut Hill Park, St. Thomas More Hall, for Boston College, 140 Commonwealth Ave., Newton, Mass. $1,250,000. CD 10/13.

Mass., Springfield—SCHOOL—B.A. 11/25—City, P. Bldgs. Dpt., Municipal Bldg., elementary school, Ashland and Ballard Sts. $325,000. Plans deposit $100, refundable. Christopher P. Kantianis, 1537 Main St., archt. CD 5/12.

Conn., Waterbury—HOSPITAL—B.A. 12/8—Waterbury Hospital, Charles V. Wynne, supt., Robbins St., hospital addn., alterations; Part A, entrance and lobby addn., alterations to ground floor; Part B, emergency suite addn.; Part C, alts. to first floor; Part D, install Elevators 1 and 2, misc. alterations, Watertown Ave. Plans deposit $100. Weiskopf & Pickworth, 2 W. 45 St., New York, N. Y., structural engrs. Smith & Silverman, 415 Lexington Ave., New York, N. Y., electrical engrs. York & Sawyer, 101 Park Ave., New York, N. Y., archts.

Mass., Southwick—SCHOOL—B.A. 12/17—Town, Bd. Selectmen, Depont St., Junior High School, Mill Rd. $420,000. Plans deposit $60, Ralph M. Sizer, 10 Elm St., Westfield, archt. CD 11/5/52.

SOON LETS CONTRACT—BUILDINGS

Mass., Worcester—MERCANTILE—At office Franklyn R. Williams, archt., 20 Elm St. soon lets contract, concrete foundation for mercantile bldg., Gold Star Blvd., for Sawyers, 66 Lincoln St., Worcester, Mass. $750,000. CD 4/21/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **MAINE**—Bureau P. Rds., Dpt. Commerce, Acadia National Park Office, Bar Harbor,
Harold MacQuinn, 13 Holland Ave., Bar Harbor, Me. LB $143,510, est. $100,000. constr. road, Proj. 6A5, 10A6, 43AI, Bar Harbor. Bids Nov. 4. CD 10/16.

MAINE—State Hy. Comn., State House, Augusta,
Donald J. McKay, Houlton, Me. CA $303,928. bit. grav. 5.856 mi. State Hy. K, Smyrna, State Proj. No. 133,
Cianchette Bros., Inc., 29 Hunnewell Ave., Pittsfield, Me. CA $155,899. b. conc. 5.117 mi., S.P. 952, "N" Princeton;
The Bridge Constr. Corp., 341 Water St., Augusta, Me. CA $705,476. b. conc. 3.886 mi. F.A. Projs. Nos. UI-01-4 (2) and I-01-4 (4), K 25, Orono and Old Town. Bids Nov. 4.

Cianchette Bros., Inc., 29 Hunnewell Ave., Pittsfield, Me. CA $76,749, est. $75,000. parking area and road constr. toll station, Reid State Park, GEORGETOWN, ME. State Park Comn., Vickery Hill Bldg., 11 Chapel St., Augusta, Me. Bids Nov. 4. CD 10/28.

NEW HAMPSHIRE—State Dpt. P. Wks. & Hys., Concord,
W. W. Wyman, Inc., 324 Wells St., Greenfield, Mass. LB $92,535, two 167 ft. rein.-con. slab bridges on Is on F. E. Everett Turnpike, Merrimack and Nashua. Bids Nov. 5. CD 10/28.

† **U. S. Eng.**, 857 Commonwealth Ave., Boston, Mass. rejected bids May 30, base operations bldg., parachute bldg. and ammunition storage, Municipal Airport, ENG-19-016-53-103, SOUTH BURLINGTON, VT. LB $60,000. CD 6/3, under LB.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
V. Barletta Co., 10 Whipple Ave., Roslindale, Mass. CA $703,657, est. $709,500. state hy. and bridge constr. Rte. 3, Bedford. Bids Oct. 20. CD 10/7.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
M. DeMatteo Constr. Co., 200 Hancock St., Quincy, Mass. LB $4,826,352, est. $5,100,000. hy. and bridge, Rte. 128 U 229 (5), Needham and Wellesley.

Daniel O'Connell's Sons, Inc., 480 Hampton St., Holyoke, Mass. LB $1,697,928, est. $1,950,000. Contr C state hy. and bridge South End Bridge Columbus Ave., Agawam and Springfield. Bids Nov. 3. CD 10/7.

† **Bay State Dredging & Contg. Co.**, 62 Condor St., East Boston, Mass. LB $72,000 Item 1, $55,500 Item 2, $50,000 Item 3, est. $70,000. repairing Pier No. 1, Naval Shipyard, NOY 81085, Spec. 40086, CHARLESTOWN, MASS. First Naval Dist., 495 Summer St., Boston, Mass. CD 11/2/51.

Turner Constr. Co., 38 Newbury St., Boston, Mass. CA Approx. $60,000. Incinerator, WINDSOR LOCKS, CONN. Hamilton Standard Div., United Aircraft Corp., Windsor Locks, Conn. Bids July 15.

BUILDINGS

LOW BIDS AND CONTRACTS

A. J. Martini, Inc., 6 Jerome St., Medford, Mass. LB $605,325, est. $600,000. Hollis SCHOOL addn. 482 Washington St., BRAINTREE, MASS. Town, R. W. Proctor, supt. Schools, 10 Tremont St., Braintree, Mass. Bids Nov. 5. CD 10/26.

Columbia Constr. Co., 10 Tremont St., Boston, Mass. LB $509,003. E 507 Contr. 1, AUDITORIUM and GYMNASIUM, FRAMINGHAM, MASS. State, Dpt. Educ., State Teachers' College, Framingham, Mass. Bids Nov. 6. CD 10/20.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	**Latin America**
Sewers, Waste Disposal	**Public Buildings**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects inviolved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

▲ **J. F. Rand & Son**, 57 Sudbury St., Boston, Mass. LB $1,657,256, est. $1,000,000. addn., alterations present Junior High School into Four Year High SCHOOL, Main St., WINCHESTER, MASS. Town, Wm. Spears, chn. Bldg. Comn., 84 Washington St., Winchester, Mass. Bids Nov. 5. CD 10/14.

F. R. Jones Co., 150 Willard Ave., Newington, Conn., LB, $851,750, elementary and Junior High SCHOOL, Chapin Ave. site, ROCKY HILL, CONN. Town School Bldg. Comn., Bd. Educ., Center School, Rocky Hill, Conn. Bids Nov. 2.

John Gaffey Constr. Co., Ontario St., Stratford, Ont., CA, $300,000. 1 story, 160x200 ft., brick, steel, concrete FACTORY, STRATFORD, CONN. Kugelfisher Schafer & Co., Schweinfurt, Germany.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **N. Y., Fort Schuyler**—SUCTION LINE—B.A. 11/24—P. Wks. Office, Third Naval Dist., Federal Office Bldg., 90 Church St., New York, Zone 7, install suction line for fire pump connection, U. S. Naval and Marine Corps Reserve Training Center, NOY 81264 (SF), Spec. 41584 (SF).

Delaware—B.A. 11/25—State Hy. Dpt., Dover, Constr. 1309, repairing earth dikes, Broadkill Beach to Mispillion River, Sussex Co.; Contr. 1308, shore protection Slaughter Beach, two creosoted timber groins, one exten. to present groin, Sussex Co. W. A. McWilliams, c/o owner, ch. engr.

† **Md., Carderock**—TEST BORINGS—B.A. 11/25—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., test borings for arm and maneuvering basin at David W. Taylor Model Basin, NOY 81457. Plans deposit $10. CD 8/10.

New York—B.A. 12/3—Henry A. Cohen, dir. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, water main and sanitary sewer New York State Thruway-Catskill Sect., Subd. 3A (Southern Blvd. interchange). Contr. No. C. T 53-13. Albany Co. $77,000. Plans deposit $10. adv. ENR 11/19.

New York—JAMAICA BAY CROSSING—B.A. 12/4—New York City Transit Auth., 370 Jay St., Brooklyn Zone 1, constr. Rte. 119-G (Rockaway Route), Jamaica Bay Crossing, bridge and high trestle superstructures from North Channel to Beach Channel, Queens Boro. CD 8/31/45.

New York—D. C. CONNECTIONS, etc.—B.A. 12/4—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, furnishing, installing D. C. connections and track bonding for Culver Yard, IND Div. Brooklyn Boro. CD 9/6/45.

New York—POWER EQUIP.—B.A. 12/4—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, furnishing, installing power equip. for 60th St. Tunnel Constr., BMT and IND Divs., Manhattan and Queens Boros. CD 8/31/45.

† **N. Y., Westhampton**—FUEL FACILITIES—B.A. 12/8—U. S. Eng., 80 Lafayette St., New York, Zone 13, fuel facilities, Suffolk County Air Force Base, Serial No. Eng-30-075-54-91. $80,000. Plans deposit $10. CD 9/14/51.

New York—SIGNAL EQUIP.—B.A. 12/18—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, furnishing, installing signal equip. for platform extens. and 11-car train operation, Times Square to Main St., Flushing Line, IRT Div., Manhattan and Queens Boros. CD 3/2/44.

BIDS ASKED—BUILDINGS

Md., Baltimore—PLANT—B.A. 11/23—Schluderberg-Kurdle Co., 3800 E. Baltimore St., brick, concrete, steel meat packing plant addn. $300,000. Henschein, Evards & Crombie, 59 E. Van Buren St., Chicago, Ill., archts.

N. J., Lebanon—SCHOOL—B.A. 11/23—Bd. Educ., Lebanon, elementary school.

▲ **N. Y., South Farmingdale**—SCHOOL—B.A. 11/24—Bd. Educ., Union Free School Dist. 22, Town of Oyster Bay and Babylon, Main St., School, Farmingdale, South Central Elementary School. $1,400,000.

Pa., New Kensington—Y.M.C.A. BLDG.—B.A. 11/24—Young Men's Christian Assn., 858 Constitution Blvd., 4 story, 120x140 ft., brick, steel Y.M.C.A. bldg. $500,000. Sorber & Hoone, 711 First Natl. Bank Bldg., Greensburg, archts. CD 3/31.

† **D. C., Wash.**—SCIENCE HALL—B.A. 12/2—General Services Admin., P. Bldgs. Serv., General Services Bldg., 19 and F Sts. N.W., Thirkfield Science Hall alterations, Howard University. Plans deposit $15. CD 7/23/48.

▲ **N. Y., New York**—SCHOOL—B.A. 12/2—Director, Bureau Constr., 49 Flatbush Ave. exten., Brooklyn, Zone 2, general constr. P. S. 198, Avenue D, E. 11, Dry Dock and E. 12 Sts., Manhattan Boro. $1,800,000. Plans deposit $24. CD 7/24.

▲ **Md., Rockville**—SCHOOL—B.A. 12/3—Montgomery Co., B. Educ., Rockville Junior High School. $1,500,-

ADVERTISEMENT

Shovel-Crane Performance Depends a Lot on the Crawler

The crawler on a shovel, crane, dragline, clamshell, or hoe contributes much more to the operation of the machine than just transportation. It is important in many ways to over-all performance.

In the first place, the actual size of the crawler should be related to the type of job being performed. For example, a shovel that operates on firm footing with limited travel, such as in a quarry, can function properly with medium crawler length and tread width. The same shovel moving frequently on soft ground would need wider treads and a longer crawler to give lower ground bearing pressures and consequently better soft-ground flotation.

STANDARD

Dragline and crane work generally require the longest and widest crawlers with the widest treads of all. Working with a long boom at a low angle tends to make the front end of any machine "nose-in", particularly when on soft ground. An extra-long crawler with wide treads to give more "footing" and lower ground pressures can reduce this considerably.

LONG

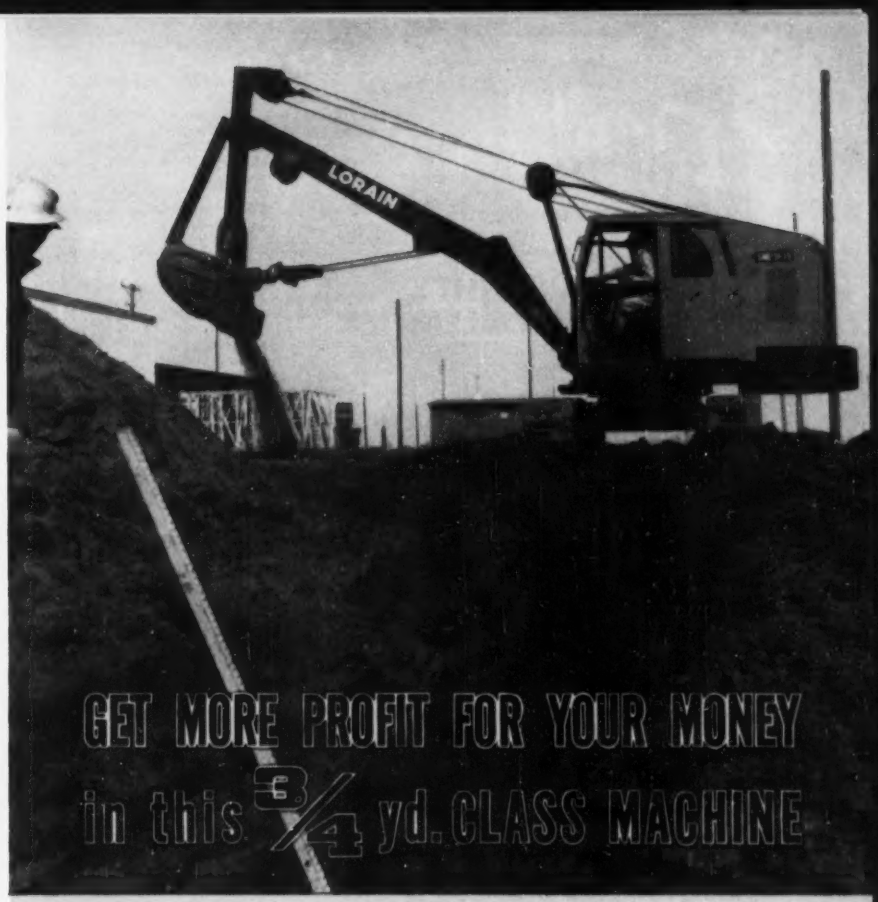
Extra-long, extra-wide crawlers are sometimes used on draglines and more often on lifting cranes to give additional stability and thus, increased lifting capacities.

Crawlers that can travel in either direction and have 4-way tread-travel locks operated by power from the cab are more efficient and safer. These allow the machine to travel forward or "move-up" into the job as necessary; whereas, any rearward thrusts, due to digging action of the machine, work against locked treads to hold the crawler in position. It also eliminates backsliding on uphill work or travel.

LONG-WIDE

Crawlers that can be steered with the turntable in any position of swing save time on the job — and if all crawler controls are operated from the turntable cab, greater and faster maneuverability is obtained.

The crawler can make the difference between profit and loss on a job. Get the right one to fit your needs.



GET MORE PROFIT FOR YOUR MONEY in this ¾ yd. CLASS MACHINE

The only reason for buying a shovel-crane is to make a profit. This means it has to be reasonable in first cost, fast and easy of operation, long-lasting, easily convertible to fit your needs, easy to maintain and repair and served by a widespread national distributor organization that can give you prompt help in emergencies wherever your jobs may be. Lack of any one of these factors can *decrease* your profits.

Because we know you *must* profit before we do, we *make sure* you get all of these advantages when you buy a ¾ yd. Lorain TL-25 — or any other Lorain — shovel, crane, clamshell, dragline or hoe. Trenching, digging, lifting, any need you have in the ¾ yd. class can be filled with a Lorain TL-25. We can prove the TL-25 to be a profit maker. Get the facts from your nearby Lorain Distributor.

SEE WHAT MAKES THE "TL-25" TICK!

NEW! The first book of its kind in the shovel-crane field — printed in color on transparent acetate so you can "X-ray" the design and construction of each major component. See the "TL-25" "Packaged Component" assembly — how each goes together, step by step. Copies sent at request on your letterhead.

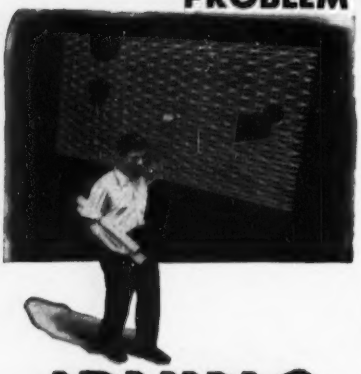
SEND FOR YOUR COPY TODAY!

WIN MORE BIDS WITH THE . . .

THE THEW SHOVEL CO.
Lorain, Ohio

THEW LORAIN TL 25

ENGINEER
WITH
WEIGHTY
PROBLEM



IRVING
ALUMINUM
GRATING

Irving Aluminum Grating
is the solution where
STRENGTH
and VERY
LIGHT WEIGHT
are wanted.

RUST PROOF

SPARK PROOF
quality of aluminum grating makes it perfect for use in Petro-Chemical Industries

For Further Information on Irving Gratings, Write

IRVING SUBWAY GRATING CO., INC.
ESTABLISHED 1902

OFFICES and PLANTS at
5063 27th St., Long Island City 1, N. Y.
1863 10th St., Oakland 20, California

(Continued from page 96)

000. Plans deposit $40. McLeod & Ferrara, 1741 De-Sales St. N.W., Wash., D. C., archts. CD 11/21/52.

N. Y., Bellerose—HIGH SCHOOL—B.A. 12/8—Director, Bureau Constr., 49 Flatbush Ave. exten., Brooklyn, Zone 2, general constr. new East Queens High School, Hillside and Seward Aves. between 229th and 232nd Sts., Queens Boro. Plans deposit $40. CD 10/21/48.

SOON LETS CONTRACT—BUILDINGS

Pa., Allison Park—SCHOOL—St. Ursula R. C. Congregation, Allison Park, soon lets contract 3 story 63x151 ft., brick, block, stone, steel, parochial school. $300,000. Marlier & Johnstone, 1107 Empire Bldg, Pittsburgh, archts.

Pa., Pittsburgh—CHURCH—Zion Lutheran Church, Rte. 51 and Brownsville Rd., soon lets contract, 1 story bsmt., brick, block church, Brentwood, $300,000. A. N. Steinmark, 922 Empire Bldg., archt. CD 6/26.

▲ Pa., Pittsburgh — DISTRIBUTION CENTER, etc. — Western Electric Co., 195 Broad St., New York, N. Y., soon lets contract, 1 and 2-story approx. 250x400 ft., brick, concrete, steel distribution center and warehouse, $2,000,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E Smith State Office Bldg., Albany,
Corbetta Constr. Co., Inc., 220 E. 42 St., New York, N. Y., LB $3,074,918, est. $3,243,000, completing two bridges and long viaduct on Cross Bronx Expressway, FACBE 53-3, Bronx Co. Bids Nov. 5. CD 10/14.

▲ NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Warren Bros. Roads Co., 309 Basin St., Syracuse, N. Y. LB $160,740, est. $202,000, relocation Rte. 90 to cross over the Thruway, via Auburn St. in Montezuma, FARC. 53-114, FASH 53-13, FARC (OT) 53-113, RC (OT) 53-124, Cayuga Co.;
Bero Eng. & Constr. Corp., McKinley Bldg., Buffalo, N. Y. LB $836,599, est. $906,000, grading, drainage Long Pond Rd. to Dewey Ave., Lake Ontario State Parkway, LOSP 53-5, Monroe Co. Bids Nov. 5. CD 10/14.

▲ NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Slattery Rock Corp., 46-30 54 Rd., Maspeth, N. Y. CA $6,777,652, est. $6,903,000, 1.29 mi. Cross Bronx Expressway, Contr. 9K, White Plains Rd., Zerega Ave. FA.GBE 53-2, Bronx Co. Bids Oct. 1. CD 10/5, under LB.

NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
DeLillo Constr. Co., Inc., 216 W. Merrick Rd., Valley Stream, N. Y., CA $787,263, est. $796,000, 1.49 mi. Corning City; West City Line-Chestnut St., Erie Ave.-Denison Parkway, Corning City; Denison Parkway Extens., FAC. 49-4, FAC 53-19, FARC 53-123, Steuben Co. Bids Oct. 1. CD 10/5, under LB.

▲ Beacon Constr. Co., 102 Hanover St., Boston, Mass., LB $2,229,000, est. $2,380,000, 40 utility bldgs., islands and canopies for toll stations along New York State Thruway, between New York City and Buffalo, Contr. No. TUB 53-1, Albany, Greene, Schenectady, Herkimer, Madison, Montgomery, Oneida, Cayuga, Onondaga, Seneca, Genesee, Monroe, Ontario, Erie, Orange, Rockland, Ulster and Westchester Counties, NEW YORK. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Nov. 5. CD 10/14.

▲ NEW YORK—Jones Beach State Parkway Auth., Admin. Headquarters, Belmont Lake State Park, Babylon,
Tully & DiNapoli, Inc., 127-50 Northern Blvd., Flushing, N. Y., CA $2,184,903, Southern State Parkway, Imprvt. Contr. 5, Nassau Co. Bids Oct. 14. CD 10/19, under LB.

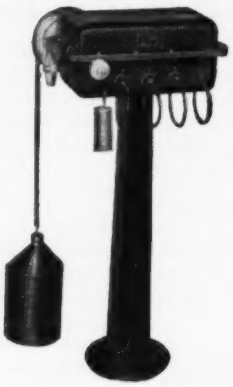
▲ Andrew Catapano & Co., 88-43 76 Ave., Glendale, N. Y. LB $1,855,471, sewers in Quince Ave., 158 St., Laburnum Ave. 161 St., 45 Ave., Queens Co., NEW YORK. President Queens Boro, Queens Boro Hall, 120-55 Queens Blvd., Kew Gardens 25, N. Y. Bids Nov. 4. CD 10/20.

B. T. & J. J. Mack, Inc., 101 Cedar St., New York 6, N. Y. CA $68,580. special work portion 109A, Flushing Line, Contr. T-112, FLUSHING, N. Y. Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Oct. 23.
Van Liewu & Van Horn, Inc., Flemington, N. J., LB, $208,795, sewage pumping plant and treatment plant, GIBBSTOWN, N. J. Greenwich Twp. Comn., Broad St., Gibbstown, N. J. A. J. Lanning, 1100 S. Broad St., Trenton, N. J., engr.

▲ PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
Francis A. Canuso & Sons, 173 W. Roosevelt Blvd., Phila. Pa., CA $6,465,149, constr. 3.53 mi. divided hy.-plain concrete base course with bit. surf., extend 3 structures over Reading R.R. tracks, one over Penna. R.R. tracks, one over Tacony Creek; one concrete pedestrian underpass and steel beam pedestrian overpass, two concrete bridges over Oxford Circle, service roads and ramps, 3 span I-beam bridge over Phila. Transit Co. tracks, crushed aggregate base with bit. surf. variable to 35-ft. wide, U. S. 1, City of Phila., Philadelphia Co.;
Gasparini Excavating Co., Inc., 1439 Main St., Peckville, Pa., CA $2,779,593, constr. 3.98 mi. crushed aggregate base with bit. surf. variable 24, 44 and 50 ft. wide; 3 reln.-con. box culverts, two over tributary of Lackawanna River and one over Lydy Creek, one I-beam bridge over Lydy St. over Avoca By-Pass; divided hy., crushed aggregate base with bit. surf., on north-bound lanes and 24-ft. wide on south-bound lanes with an earth divisor area variable to 16-ft. wide, one plate girder bridge over Spring

(Continued on page 102)

FLOAT CONTROLS
Multi-Circuit



Two to Sixteen Circuits for Operation by 1 Float

PUMPS
VALVES
ALARMS
LIGHTS

Write for Literature and Prices on the Bulletin 940 Roto-Trol

Water Level Controls Division of
Healy-Ruff Company
763 Hampden Ave. St. Paul 14, Minn.

"GUNITE"
THE PNEUMATIC MORTAR FOR

Dam Repair and Reconstruction
Reservoir Lining
Bunker and Stack Linings
Tunnels and Pipe Linings
Structural Steel Encasements
Prestressed Tanks
Restoration of Defective Masonry Structures
High and Low Pressure Grouting

PHONE OR WRITE FOR ESTIMATES

MUrrayhill 3-1973

. . . for the finest in Pneumatic Mortar Work

LEWIS & McDOWELL, Inc.
GUNITE ENGINEERS & CONTRACTORS
285 MADISON AVE. NEW YORK CITY

Protection by TOUSEY!

FOR 69 years Tousey has been manufacturing paints, varnishes, lacquers and sealers for American Industry. Building a reputation for quality and durability — offering the protection of unlimited guarantee on all orders. ★ Heavy diesel crawler tractors as shown above are also offered protection by Tousey. Ingredients from an ever-increasing production line are used in the mixing of the brilliant red finish that resists punishment from rocks, sand, water, weather, heat and vibration. ★ Take advantage of this 2-way protection—specify and insist on finishes by Tousey.

TOUSEY PRODUCTS

DURACOTE for DURABILITY

TOUSEY VARNISH COMPANY

520 WEST 25TH STREET CHICAGO 16, ILLINOIS

LE ROI

TRACTAIR

takes air power anywhere!

Does many jobs, to hold down your investment in special equipment

DON'T tie up trucks or extra help to move your air from job to job. One man driving a Tractair can do it alone — save you time and money.

In one unit, Tractair gives you a 35-hp tractor and a 105-cfm compressor. It has good traction and low center of gravity — can go almost everywhere. It is this combination of air power, horsepower, and mobility that cuts costs on many jobs:

You can use Tractair to operate Le Roi-CLEVELAND air tools — to break pavement, dig clay, drill rock, tamp fill, drive form pins, do many other types of work. And — by equipping it with a front-end loader and special attachments — you can use Tractair for loading, lifting, backfilling, snow-plowing, etc.

Yes, sir, Tractair is truly a money-saving handy man. See for yourself — watch Tractair at work. Ask your nearby Le Roi distributor to show you one.

Write today for job-data sheets and bulletins on Tractair.

Why rent or buy specialized equipment? For a fraction of the cost, you can do the same work with this Tractair and attachments.

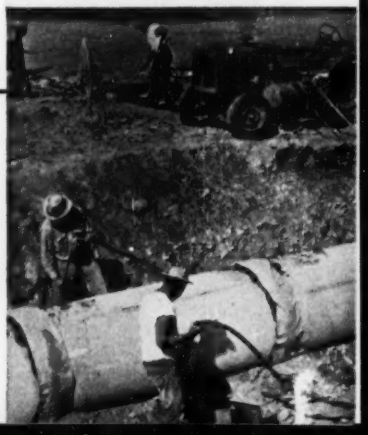
Tamping — Tractair puts air to work running Le Roi-CLEVELAND backfill tampers. You get faster, easier tamping; better compaction; lower costs. A good example of how Tractair teams up with Le Roi-CLEVELAND air tools to save time, work, money.

T-25

Compressors
Rock Drills
Tractair
Engines . . .

LE ROI COMPANY MILWAUKEE 14, WISCONSIN

Plants: MILWAUKEE • CLEVELAND • GREENWICH • OHIO



Nation-Wide Sales-Service Network

ALABAMA: Birmingham, Mobile — ARIZONA: Phoenix — ARKANSAS: Little Rock — CALIFORNIA: Bakersfield, Long Beach, Los Angeles, San Francisco — COLORADO: Denver, Grand Junction — CONNECTICUT: Hartford — FLORIDA: Jacksonville, Miami, Tampa — GEORGIA: Augusta, Decatur — IDAHO: Boise, Idaho Falls, Twin Falls — ILLINOIS: Chicago — INDIANA: Indianapolis — IOWA: Cedar Rapids, Des Moines, Waterloo — KANSAS: Great Bend, Kansas City, Pratt, Wichita — KENTUCKY: Lexington, Louisville — LOUISIANA: New Orleans, Shreveport — MAINE: Augusta — MARYLAND: Baltimore, Hyattsville — MASSACHUSETTS: Hyde Park, Newton Highlands, Worcester — MICHIGAN: Detroit, Grand Rapids — MINNESOTA: Duluth, Minneapolis — MISSISSIPPI: Jackson — MISSOURI: Joplin, St. Louis — MONTANA: Billings, Great Falls, Kalispell, Missoula — NEBRASKA: Omaha — NEW HAMPSHIRE: Manchester — NEW JERSEY: Cranford, Kingston — NEW MEXICO: Albuquerque — NEW YORK: Albany, Binghamton, Buffalo, Long Island City, Newburgh, Rochester, Saugerties, Syracuse, Whitesboro, Woodside (L.I.) — NORTH CAROLINA: Charlotte — OHIO: Cincinnati, Cleveland, Columbus, Dayton, Toledo — OKLAHOMA: Oklahoma City, Tulsa — OREGON: Portland — PENNSYLVANIA: Bethlehem, Harrisburg, Philadelphia, Pittsburgh — RHODE ISLAND: Providence — SOUTH CAROLINA: Columbia — SOUTH DAKOTA: Rapid City, Sioux Falls — TENNESSEE: Chattanooga, Knoxville, Memphis, Nashville — TEXAS: Dallas, El Paso, Houston, Lubbock, San Antonio — UTAH: Salt Lake City — VIRGINIA: Richmond, Roanoke — WASHINGTON: Seattle, Spokane — WEST VIRGINIA: Clarksburg, South Charleston — WISCONSIN: Milwaukee — WYOMING: Casper.

Le Roi *gives you more for your money!*

MORE UTILITY! **MORE PROFIT!**

Backhoe — With hydraulic backhoe attachment on Tractair, you can dig as deep as 7'—cut through hard ground a pick and shovel can't penetrate — keep the bottom of a ditch perfectly level — dig straight-end walls and square corners.

Drilling, Breaking, Digging — Here again, Tractair puts air power to work running a Le Roi-CLEVELAND clay digger. Tractair can be used also to run other Le Roi-CLEVELAND air tools — breakers, sinker drills, backfill tampers, light wagon drill.

Mobildrill — With this lightweight wagon-drill attachment on Tractair, one man can drill vertical and horizontal holes at any angle and any elevation up to 12 ft. Swinging boom permits drilling 4-6 holes of a pattern from one spot.

(Continued from page 98)

Brook; two I-beam bridges in Moosic Boro over city streets and bit. surf. for paving railroad crossing and approach adjustments, T.R. 315, Lackawanna and Luzerne Counties;

Howard Worthington, Box 95, Line Lexington, Pa., CA **$781,586.** constr. 6.74 mi. crushed aggregate base with bit. surf. variable to 24 ft. wide, incl. 2 rein.-con. bridges, one over Goschenhoppen Creek and one over branch of Goschenhoppen Creek, T. R. 29 Montgomery Co. Grand total $10,026,328. Bids Oct. 23. CD 10/28, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Colmar Constr. Co.,** 364 Gold St., Brooklyn, 1, N. Y. LB **$1,869,000,** general reconstr. new Junior HIGH SCHOOL 263, Chester and Bristol Sts. between Blake and Sutter Aves., BROOKLYN, N. Y. Dir. Bureau Constr., 49 Flatbush Ave. extens., Brooklyn 1, N. Y. Bids Oct. 26. CD 10/1.

▲ **Central Homes,** c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. **$3,000,000.** 175 HOUSES, 50-acre tract, Forrest Ave. at St. James Pl., GLEN COVE, N. Y.

▲ **Harry & Stanley Michaelson,** c/o Matern & York, archts., 90-04 161 St., Jamacia, N. Y. Owner Builds. **$1,300,000.** 114 HOUSES, 32-acre tract, Jericho Turnpike and Elwood Rd., HUNTINGTON, N. Y.

Herrick Manor, Inc., c/o Julius Fishkind, archt., 161-19 Jamaica Ave., Jamaica, N. Y. Owner Builds. **$546,-000,** 6 story APARTMENT, 86 St. north of Roosevelt Ave., JACKSON HEIGHTS, N. Y. CD 8/26.

▲ **Nelshore, Inc.,** 99 Wall St., New York 5, N. Y. Owner Builds. **$1,000,000.** 100 HOUSES, 20-acre tract, Nelshore Dr., MONTICELLO, N. Y.

▲ **Caristo Constr. Corp.,** 26 Court St., Brooklyn 2, N. Y. LB **$1,416,000,** SCHOOL, P. S. 191, E-148, Amsterdam Ave., 60 and 61 Sts., Manhattan Boro, NEW YORK, N. Y. Bd. Educ., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 6. CD 10/6.

Citadel Homes, c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. **$600,000.** 50 HOUSES, Main Parkway, near Central Park Rd., PLAINVIEW, N. Y.

▲ **Birchwood Knolls Homes,** c/o Stanley H. Klein, archt., 89-31, 161 St., Jamacia, N. Y. Owner Builds. **$3,200,000.** 128 HOUSES, 40-acre tract, Northern State Parkway WESTBURY, N. Y.

▲ **John McShain, Inc.,** 17 and Spring Garden Sts., Phila., Pa., LB **$5,942,700,** general constr.;

Riggs-Distler & Co., 1518 Walnut St., Phila., Pa. LB **$1,087,000,** air-conditioning;

Herre Bros., 6th and Montrose Sts., Harrisburg, Pa., LB **$1,265,872,** plumbing and heating;

Haughton Elevator Co., 1725 Fairmont Ave., Phila., Pa. LB **$492,529,** elevators for constr. 18-story OFFICE BLDG., 7th and Forster Sts. for State Dpt. Labor & Industry, HARRISBURG, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids Nov. 5. CD 9/24.

Edward A. Wehr, 1325 Highland Bldg., Pittsburgh, Pa., CA **$400,000.** 3 story, brick, stone CHURCH addn., MOUNT LEBANON, PA. St. Pauls Episcopal Church, Washington Rd., Pittsburgh, Pa. CD 2/18.

Mount Lebanon Builders, 410 Washington Rd., Mt. Lebanon, Pittsburgh, Pa., CA **$700,000.** 3 story, bsmnt., 20x120 ft., brick, steel, BANK and OFFICE, MT. LEBANON, PA. Mount Lebanon Federal Savings & Loan Assn., 731 Washington Rd., Pittsburgh, Pa. Bids Oct. 20. CD 10/6.

▲ **Navarro Corp.,** 6219 Broad St., Pittsburgh, Pa., LB Est. **$1,077,043.** 3 story, bsmnt., 50x150 ft., 30x72 ft., 32x58 ft., H-shaped, brick, steel frame HOSPITAL addn., alterations. NEW BRIGHTON, PA. Beaver Valley General Hospital, New Brighton, Pa. A. L. Martsolf, 512 Third Ave., New Brighton, Pa., archt. CD 7/30, under LB.

▲ **Dick Constr. Co.,** Rte. 51, Library, Pa., CA **$1,298,-000.** 6 story, bsmnt., 80x150 ft., brick, block, steel SCHOOL of ENGINEERING and MINES, O'Hara St., PITTSBURGH, PA. University of Pittsburgh, Forbes St., Pittsburgh, Pa. Bids Oct. 14. CD 10/22, under LB.

O. H. Martin Co., 18 First St., Sharpsburg, Pa. CA Est. **$500,000.** 5 story, rein.-con. WAREHOUSE and MFG. BLDG. PITTSBURGH, PA. Edwin L. Wiegand Co., 7500 Thomas Blvd., Pittsburgh, Pa. Bids Oct. 29. CD 10/22.

O. H. Martin Co., 18 First St., Sharpsburg, Pa., CA **$150,000.** 1 story, 50x225 ft., brick, corrugated metal WAREHOUSE, PITTSBURGH, PA. Harris Pump & Supply Co., Sidney and Brady Sts., Pittsburgh, Pa. Bids Oct. 8. CD 9/29.

P. W. Campbell Co., 366 S. Graham St., Pittsburgh, Pa. CA **$300,000.** 3 story, 70x190 ft., brick, block, stone, steel MEMORIAL HALL, Fox Chapel, PITTSBURGH, PA. Shadyside Academy, Fox Chapel, Pittsburgh, Pa. Bids Oct. 23. CD 10/8.

Geo. J. Miller Jr., Inc., 428 Academy Rd., Baltimore, Md. Owner Builds. **$410,000.** thirty-three 2 story, masonry HOUSES, Northwood St., BALTIMORE, MD. Lawrence A. Menefee, 347 N. Charles St., Baltimore, Md., archt.

Admiral Equipment Corp., 233 Equitable Bldg., Baltimore 2, Md. Owner Builds. **$500,000.** fifty 1½ story, bsmnt., 28x30 ft. HOUSES, BELVIDERE, MD.

Hawthorne Builders, Inc., Kingston Rd., Essex, Md. CA. **$610,000.** sixty-one 2 story, 18x32 ft. masonry RESIDENCES, Hawthorne and Kingston Rds., ESSEX, MD. Kingston Homes, Inc., 8405 Loch Raven Blvd., Towson, Md.

† **Norris Construction Co.,** 925 20 St. N.W., Wash., D. C., LB, **$192,900,** ENGINE CO. NO. 30 and TRUCK CO. NO. 17, Central Ave. and 49 St. N.E., WASH., D. C. D. C. Govt., Dir. Bldgs. & Grounds, 499 Pa. Ave. N.W., Wash., D. C. Bids Nov. 3. CD 10/19.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **North Carolina**—B.A. 12/1—U. S. Eng., 308 Customhouse, Wilmington, guard and guide walls, Lock and Dam, No. 2, near Elizabethtown, Cape Fear River, CIVENG-31-075-54-7. CD 10/27, under LB.

† **Va., Little Creek**—UTILITIES—B.A. 12/1—P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, utilities at U. S. Naval Amphibious Base, NOV 78282, Spec. 37696. Plans deposit $10. CD 10/20/52.

† **Louisiana**—B.A. 12/3—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, maintenance dredging, consisting removal and disposal approx. 2,460,000 cu. yd. shoaled material, Inv. 54-81, Calcasieu and Cameron Parishes. CD 6/26/46.

† **N. C., Wilmington**—PARKING APRON—B.A. 12/3—Dpt. Navy, P. Wks. Officer, Naval Base, Charleston, S. C. aircraft parking apron, Marine Corps Auxiliary Landing Strip, NOY 79152. Extended date. CD 10/15.

Tenn., Nashville—B.A. 12/8—At office E. B. Smith, city purch. agent, City Hall, Proj. No. 53-SD-2, left bank upstream open-cut interceptor sewer. Plans deposit $15. Rice, Harwood & Clark, Archt.-Engrs., 905 American Trust Bldg., adv. ENR 11/19. CD 4/15/46.

† **Tennessee**—B.A. 1/5—U.S. Eng., P.O. Box 97, Memphis, Zone 1, concrete floodwall and appurtenant structures Sect. 1-B. of Memphis, Wolf River and Nonconnah Creek, Inv. No. CIVENG-40-041-54-58.

BIDS ASKED—BUILDINGS

† **N. C., Fort Bragg**—PARACHUTE—B.A. 11/24—U. S. Eng., 308 Customhouse, Wilmington, parachute storage and issue bldg., ENG-31-075-54-1. CD 10/19.

N. C., Charlotte—DEPARTMENT STORE—B.A. 11/25—Belk Bros. Co., 115 E. Trade St., department store

(Continued on page 104)

CUTS MORE CONCRETE PER DAY BECAUSE THE MODEL 252 IS SELF-PROPELLED! OVERCOMES OPERATOR FATIGUE, ELIMINATES FREQUENT REST PERIODS, COVERS FAR MORE FOOTAGE IN A DAY!

★ **LONGER BLADE LIFE**—No sudden bumps and jolts to add unnecessary wear and tear on the diamond wheel. Smooth, uniform POWER FEED adds longer blade life—CUTS COSTS! Actual field reports have shown blade life as much as doubled.

★ **DEEP CUTS**—approximately 7" maximum with 18" blade. 13.5 h.p. engine furnishes power to spare.

★ **DOUBLE END SPINDLE** for right or left hand cutting.

★ **HINGED BLADE GUARDS**—Front half lifts, exposing blade for close-up work.

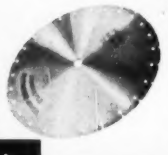
Ask your Felker DI-MET Representative for recommendations.

POWER — SPEED — MANEUVERABILITY PLUS LOW COST!

Felker DI-MET Model 135 Here's the concrete cutter for your every-day jobs . . . trenching, patching, cutting curbs, ramps and dozens of other uses! Light, easily maneuverable with powerful 13.5 h.p. engine. Built for 12" blades but powerful enough for 18" blades (with special guard). 3 wheel design. *Other concrete cutters available. Ask for details!*

Use DI-MET Machines and Blades for every concrete cutting requirement!

Here's an unusual application—sawing up and re-locating a concrete wall! Savings: $241.00 on a $991.00 job!



Felker DI-MET the SEGMENTED type diamond blade with peak *performance!* Built by the only manufacturer making *both* concrete cutters and diamond wheels. Bond variations for every cutting requirement insure *more footage*—lower cost per cut!

FELKER DI-MET

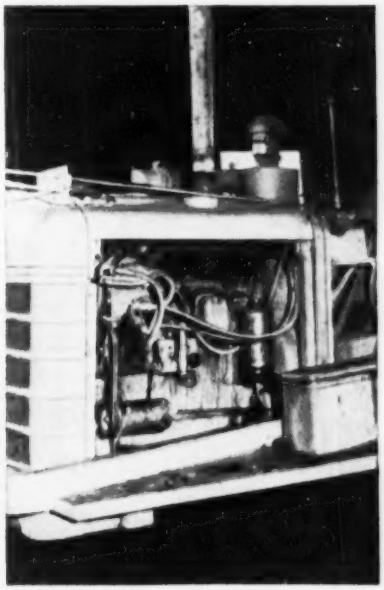
FELKER MANUFACTURING CO.
TORRANCE • CALIFORNIA
World's Largest Manufacturer of Diamond Abrasive Cut-off Wheels and Equipment

The Engineer's Report

CASE HISTORY

LUBRICANT RPM Delo Oils

FIRM Dana Company, Inc., Apple Valley, Calif.



This paving machine diesel worked more than 2400 hours, laid 85 miles of asphalt highway before even the head was removed.

No bearing, ring trouble in 6 years desert operation!

Sand, wind, dust and heat are tough on engines in the California desert where Dana Company, Inc., develops subdivisions, builds and paves streets and highways. But, using RPM DELO Lubricating Oils, not one engine lost a bearing or stuck a ring in 6 years. Even with constant dust conditions and rapid temperature changes—often from below freezing to 75°F. in a morning—they have no carbon and sludge problem. "RPM DELO Oils keep our engines very clean and cut repair costs," says Mr. Ross Dana, President. "One diesel in a paving machine laid 85 miles of asphalt, worked 2400 hours before it was touched. Then, only a valve grind was needed."

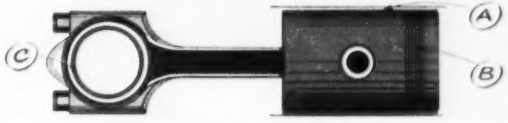
FREE FOLDER tells you about all the RPM DELO Oils and how they meet every heavy-duty engine condition. Write or ask for it today.

FOR MORE INFORMATION about petroleum products of any kind or the name of your distributor, write or call any of the companies listed below.

RPM DELO LUBRICATING OILS

TRADEMARKS "RPM DELO" REG. U.S. PAT. OFF.

How RPM DELO Oils reduce wear, corrosion, oxidation in all Heavy-Duty Engines



A. Contain special additives that provide metal-adhesion qualities...protect parts whether hot or cold, running or idle.

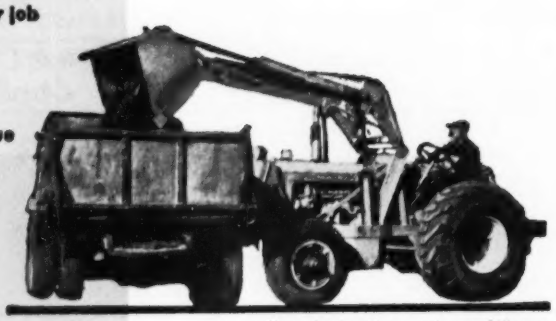
B. Anti-oxidant resists deterioration of oil and formation of lacquer...prevents ring-sticking. Detergent keeps parts clean...helps prevent piston scuffing.

C. Special compounds stop corrosion of any bearing metal and foaming in crankcase.

STANDARD OIL COMPANY OF CALIFORNIA, San Francisco 20 • STANDARD OIL COMPANY OF TEXAS, El Paso
THE CALIFORNIA OIL COMPANY, Barber, New Jersey • THE CALIFORNIA COMPANY, Denver 1, Colorado

MM WHEELERS

- Equipped for your job
- easy to handle
- high speed
- large capacity
- high engine torque at low rpm
- durable single unit construction
- low in cost
- nearby parts and service



Up and out, with power to spare! Heavy-duty MM Wheelers offer the important advantages of proved conventional design.

Rugged MM WHEELERS

MINNEAPOLIS MOLINE — MODERN MACHINERY

Built and equipped for your heavy jobs!

CONVENTIONAL DESIGN FOR FRONT OR REAR END ATTACHMENTS

You get *more work* out of MM Wheelers with this conventional design that handles a *bigger* variety of attaching equipment. Front and rear mounted equipment makes *both* ends of your Wheeler pay. Practical drawbar applications further reduce machinery investments. MM design combines economy of first cost; fast, easy operation; ability to handle *more* tool types, and real operating safety.

Let your MM distributor demonstrate. See for yourself why MM owners call their Wheeler and equipment combination the "one man contractors."

MORE WORK from more equipment! MM Wheeler owners get all the advantages of design that make both ends pay — like this 3 yd. scraper.

Provisions for rear mounting give you real back-hoe performance. Again, Wheeler design pays off with more work from standard design.

MINNEAPOLIS-MOLINE
MINNEAPOLIS 1, MINNESOTA

(Continued from page 102)

addn. $500,000. Plans deposit $90. A. G. Odell, Jr. & Assocs., 109 W. 3 St., archts. CD 6/25/52.

▲ **Fla., Sarasota**—HOSPITAL—B.A. 12/14—Sarasota Co., hospital. $1,500,000. Extended date. Kannenberg & Hanebuth, 267 W. Eighth St., archts. CD 7/24.

▲ **Ga., Colquitt**—SCHOOLS—B.A. 12/17—Miller Co., Bd. Educ., negro elementary high school, $500,000; White Elementary-High School, $500,000. Plans deposit $50 each. Albany Architects & Engineers, P.O. Box 1778, Albany, archts. CD 8/27/52.

† **La., New Orleans**—PLANT FACILITIES—B.A. 12/18—U. S. Eng., P.O. Box 1229, Galveston, Tex., remodeling, repairing existing facilities in cafeteria, paint storage bldg., receiving office, main mfg. bldg., Michand Ordnance Plant. ENG-41-243-54-32. Under $100,000, CD 6/4.

Ga., Douglas—SCHOOLS—B.A. 12/22—Coffee Co. Bd. Educ., negro high school, $500,000; white high school, $500,000. Plans deposit $50 each. Lloyd Greer, 105 E. Ann St., Valdosta, archt. CD 8/27/52.

▲ **La., Bastrop**—SCHOOL—B.A. 12/22—Morehouse Parish School Bd., high school. $1,000,000. Smith & Padgett, 512 Ouachita Bank Bldg., Monroe, archts. CD 6/2.

SOON LETS CONTRACT—BUILDINGS

Fla., Coral Gables—DEPARTMENT STORE—Sears, Roebuck & Co., 675 Ponce De Leon Ave. N.E., Atlanta, Ga., soon lets contract, department store. $750,000. CD 10/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Blackwell Eng. Co., 3430 Abingdon St. N., Arlington, Va., LB **$208,607**, (270 days);

Bles & Muns Constr. Co., McLean, Va., LB **$214,885**, (160 days);

Guy Lewis, McLean, Va., LB **$209,625** (150 days), culvert over Hooffs Run at Prince St., ALEXANDRIA, VA. P. Wks. Office, City, Court House, Alexandria, Va. Bids Nov. 5.

▲† **Cramer-Vollmerhausen Co., Inc.**, 2601 Connecticut Ave. N.W., Wash., D. C., CA **$4,221,700**, electrical and electronics bldg., Norfolk Naval Shipyard, NOY 70226, Spec. 30149, PORTSMOUTH, VA. P. Wks. Office, Headquarters Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Oct. 27. CD 11/4, under LB.

▲ **Crain & Denbo, Inc.**, P.O. Box 969, Durham, N. C. CA **$1,369,691.** Northside Sewage Plant, DURHAM, N. C. City, Durham, N. C. Bids Oct. 27. CD 9/18.

Guest & Sons, Greensboro, N. C., LB **$103,918**, Item 4, LB **$113,024**, Item 4A of Div. 1; raw water pumping station and enlarging, revisions and repairs existing filter plant;

Elliott Building Co., Hickory, N. C., LB, **$54,565**, c.i. pipe; LB **$50,665**, c.a. pipe for WW imprvs. Div. 2, 13,000 lin. ft. 10 in. c.i. raw water mains, ROCKINGHAM, N. C. Town, Rockingham, N. C. Bids Oct. 22. CD 10/1.

Roy Richards Constr. Co., Carrollton, Ga., CA **$509,701.** 90 mi. rural distr. lines, Newberry, Kershaw, Richland, Hampton and Jasper Counties, SOUTH CAROLINA. Central Electric Co-operative, Cornell Arms Bldg., Columbia, S. C. Bids Oct. 28. CD 10/14.

† **The Arundel Corp.**, Pier 2, Pratt St., Baltimore, Md., CA, **$277,704**, maintenance dredging turning basin, U. S. Naval Auxiliary Air Station, Civeng-08-123-54-14, MAYPORT, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids Oct. 16. CD 9/92.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

T. L. James & Co., Ruston, La. CA **$793,153.** c. conc. 10.754 mi. Triumph-Venice Hy. State Rte. 31, S.P. 62-06-13 F.A. S.P. No. S 365, Plaquemine Parish. Bids Oct. 21, awarded Nov. 2. CD 10/28.

Dave L. Brown, 1800 Central Ave., Chattanooga, Tenn. CA **$316,000.** Bridge Proj. No. 7, Mahan Gap Rd. Bridge and approaches across Savannah Creek; Bridge Proj. No. 8, Dougherty Ferry Rd. Bridge and approaches across Sale Creek; Bridge Proj. No. 9, Lower Mill Rd. Bridge and approaches across North Chickamauga Creek; Bridge Proj. No. 10, Old Dayton Pike Bridge and approaches, across Sale Creek; Bridge Proj. No. 11, McGill Rd. Bridge and approaches across Opossum Creek, CHATTANOOGA, TENN. Hamilton Co. Court House, Chattanooga, Tenn. Bids Nov. 2. CD 10/6.

BUILDINGS

LOW BIDS AND CONTRACTS

Goode Constr. Corp., Builders Bldg., Charlotte, N. C. LB **$974,700.** Long Street and Cherry Ave. Elementary SCHOOLS, CHARLOTTESVILLE, VA. City School Bd., City Hall, Charlottesville, Va. Baker, Hayward & Llorens, Charlottesville, Va., archts. Bids Nov. 4. CD 10/5.

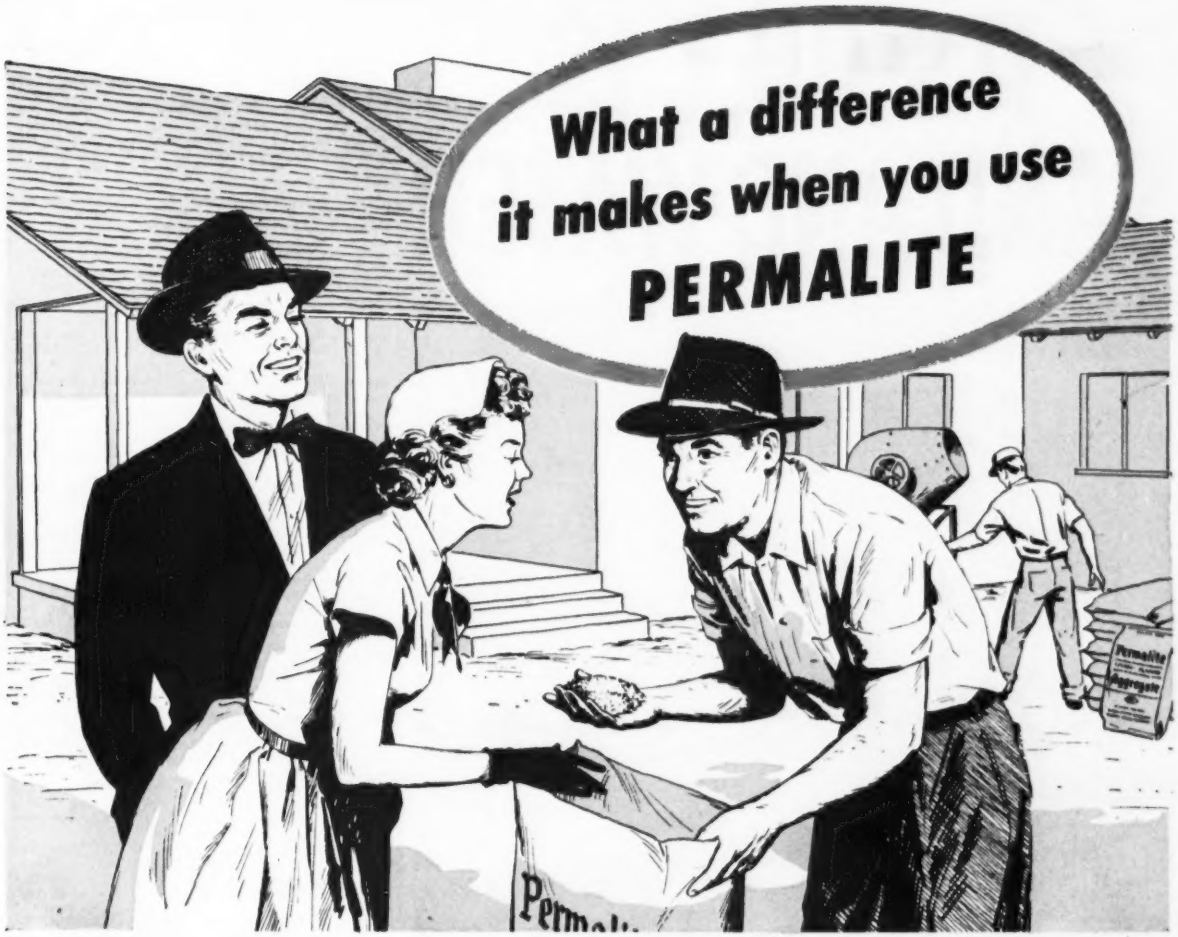
City and Suburban Homes Corp., 3209 Columbia Pike, Arlington, Va. Owner Builds. Approx. **$324,000**, 27 one story masonry RESIDENCES, FALLS CHURCH, VA. Frank Martinelli, 1164 19th St. N.W., Wash, D. C., archt.

Mottley Constr. Co., Farmville, Va., LB **$559,875**, Consolidated HIGH SCHOOL, near LOVINGSTON, VA. Nelson County School Bd., Lovingston, Va. Bids Nov. 4.

J. F. Barbour & Sons, Franklin Rd. S., Roanoke, Va. CA. **$160,000.** SALES-SERVICE GARAGE BLDG., ROANOKE, VA. Valley Cadillac & Oldsmobile, Inc., 620 2nd St., Roanoke, Va. Bids Oct. 14. CD 10/1.

T. A. Loving & Co., P.O. Box 989, Goldsboro, N. C. CA **$565,485**, 115 HOUSING units, GOLDSBORO, N. C. Goldsboro Housing Auth., Goldsboro, N. C. Bids Oct. 27. CD 11/2, under LB.

(Continued on page 106)



FOR FLOOR SLABS...

Permalite perlite aggregate concrete is ideal for making insulating concrete floor slabs. Permalite concrete has up to 10 times the insulating value of conventional concrete; used as a sub-base slab, it minimizes heat loss into the ground. Hence, it makes the ideal foundation for floor radiant heating systems. With any type of heating system, a sub-base slab of Permalite concrete helps to effect fuel savings and increase comfort. Sub-base slabs of Permalite concrete are usually covered with an abrasion-resistant layer of conventional concrete, although some builders omit this when asphalt or rubber tile, or other flooring, is to be laid on the slab.

FOR PLASTERING...

Permalite perlite aggregate plaster is the ideal base coat plaster for walls and ceilings. *Light-weight,* it is only ⅓ the weight of ordinary sanded plaster, saving in dead-load about one ton per 100 sq. yds., ½ inch thick; prevents unnecessary settling and cracking; and enables the plasterer to maintain optimum production throughout the entire day, with much less effort. *Insulating,* it adds three to four times more thermal insulation than ordinary plaster. *Fire-resistant,* it adds greater fire-protection. *Better workability* plus unsurpassed ease of handling and ease and speed of application are additional plus values of Permalite plaster.

To get the full story on Permalite's many advantages, send today for your free bulletin on Permalite, the largest-selling perlite aggregate in the world. Write Great Lakes Carbon Corporation, Dept. J3411-612 So. Flower St., Los Angeles 17.

Dependable GREAT LAKES **Permalite**®

THE LARGEST-SELLING PERLITE AGGREGATE IN THE WORLD

PROCESSED FROM PERMALITE AND ALEXITE ORES ONLY BY THESE EXCLUSIVE PERMALITE FRANCHISEES OF GREAT LAKES CARBON CORPORATION

ndoken Perlite Company
Cincinnati 17, Ohio

Perlite Products Corp.
Dallas, Texas

Rushmore Perlite Products
Rapid City, South Dakota

William J. McCormack Sand Co., Inc.
New York, New York

Pennsylvania Perlite Corp.
Allentown, Pennsylvania

The Dunne Co.
Dallas 6, Texas

Airlite Processing Corp. of Fla.
Vero Beach, Fla.

New Jersey Perlite Corp.
Newark, New Jersey

Perlite of Houston, Inc.
Houston, Texas

MacArthur Company
St. Paul 4, Minn.

McClure & Erickson Corp
Los Angeles, California

Persolite Products, Inc.
Denver, Colorado

Perma-Rock Products, Inc.
Baltimore 30, Maryland

West Indies Perlite Mfg. Co., Inc.
Havana, Cuba

Precast Slab & Tile Co.
St. Louis 10, Missouri

Lake Zurich Concrete Products Co.
Lake Zurich (Chicago), Illinois

The Whittemore Company
Roslindale 31, Mass.

Virginia Perlite Corp.
Hopewell, Virginia

ITS DIET IS SAND AND WATER

Naylor pipe "eats up" sand, gravel and water wherever a construction job calls for this strict diet. Though light in weight, this distinctive lockseamed, spiralwelded pipe has the extra strength, leaktightness and safety that makes it outstanding for rugged service. It's easy to handle, install and knock-down—especially when used with Naylor Heavy-duty Wedge-Lock couplings. Sizes range from 4" to 30" in diameter. Write for Bulletins No. 507 and No. 513.

NAYLOR PIPE COMPANY
1248 East 92nd Street, Chicago 19, Illinois
New York Office: 350 Madison Avenue, New York 17, New York

(Continued from page 104)

Avery Lumber Co., Sumter, S. C., CA $444,450, Dennis HIGH SCHOOL, BISHOPVILLE, S. C. Lee Co. Bd. Educ., Bishopville, S. C. Bids Oct. 28. CD 9/30.

George A. Creed & Son, Leesburg Rd., Columbia, S. C. CA $505,150, Jackson HIGH SCHOOL, CAMDEN, S. C. Kershaw Co. Bd. Educ., Camden, S. C. Bids Oct. 23. CD 10/5.

Cecil's, Inc., P.O. Box 1895, Spartanburg, S. C., CA $548,800, Terrells Bay SCHOOL, MARION, S. C. Marion Co. Bd. Educ., Marion, S. C. Bids Oct. 14. CD 10/26, under LB.

Jordan Contg. Co., Andrews Rd., Columbus, Ga. CA $961,000. PSYCHIATRIC BLDG. at State Hospital, MILLEDGEVILLE, GA. State Dpt. P. Welfare, State Office Bldg., Atlanta, Ga. CD 10/30, under LB.

▲ **Cecil's Inc.**, P.O. Box 1895, Spartanburg, S. C. LB $1,490,800. (1) White Elementary-High SCHOOL; (2) Negro Elementary-High SCHOOL, SWAINSBORO, GA. Emanuel Co. Bd. Educ., Swainsboro, Ga. Bids Nov. 4. CD 10/5.

Field & Riley, 1021 N.W. 10 Place, Fort Lauderdale, Fla. Owner Builds. $450,000. 50 RESIDENCES, FORT LAUDERDALE, FLA.

Orange State Oil Co., 368 N.E. 58 Terrace, Hollywood, Fla. Owner Builds. $500,000. WAREHOUSE, OFFICE, GARAGE, HOLLYWOOD, FLA. Fred J. Stewart, 1700 Mayo St., Hollywood, Fla., engr.

Jones-Frederick & Assoc., 3501 N.W. 58 St., Miami, Fla. Owner Builds. $600,000. SHOPPING CENTER, MIAMI, FLA.

▲ **Jones-Frederick & Assoc.**, 3501 N.W. 58 St., Miami, Fla. CA Est. $1,000,000. 109 RESIDENCES, MIAMI, FLA. Corel, Inc., c/o contractor.

▲ **Homebuilders, Inc.**, P.O. Box 2387, Orlando, Fla. Owner Builds. $1,000,000. 83 RESIDENCES, ORLANDO, FLA.

Winchester Constr. Co., 828 Baker St., Tallahassee, Fla. CA $704,490. men's DORMITORY, Florida A. & M. College, TALLAHASSEE, FLA. Florida State Bd. Control, Education Bldg., Tallahassee, Fla. CD 10/27, under LB.

Brice Building Co., P.O. Box 1028, Birmingham, Ala. LB $601,686. OFFICE, BIRMINGHAM, ALA. State Farm Mutual Insurance Co., Bloomington, Ill. Bids Oct. 30. CD 10/14.

▲† **Farnsworth & Chambers Co.**, P.O. Box 74, Houston, Tex. LB $2,588,000. GUIDED MISSILE TEST FACILITIES, Redstone Arsenal, HUNTSVILLE, ALA. U. S. Eng., P.O. Box 1169, Mobile 7, Ala. Bids Oct. 27. CD 9/28.

Stanley W. Newman Co., P.O. Box 1646, Mobile, Ala. LB $568,000. DORMITORY, MOBILE, ALA. Spring Hill College, Old School Rd., Mobile, Ala. Bids Nov. 3. CD 10/9.

R. P. Farnsworth & Co., Inc., 1515 S. Salcedo St., New Orleans, La. LB $735,000. 8 story, 41,000 sq. ft. NURSES HOME, NEW ORLEANS, LA. Touro Infirmary. 3516 Prytania St., New Orleans, La. Bids Oct. 28. CD 10/20.

Geo. H. Rummel Co., 958 Logan St., Louisville, Ky. LB $423,192. CHURCH and EDUCATIONAL BLDG. addn., ELIZABETHTOWN, KY. Severns Valley Baptist Church, Elizabethtown, Ky. Bids Nov. 4. CD 10/13.

▲ **Traylor Bros., Inc.**, Upper Mt. Vernon Rd., Evansville, Ind. CA $1,500,000. design and construct 200,000 sq. ft. clothing storage WAREHOUSE, U.S. 25 at city limits, ERLANGER, KY. Palm Beach Co., 240 W 7 St., Cincinnati, O. Awarded Oct. 26. CD 7/2.

Hargett Constr. Co., 130 E. Main St., Lexington, Ky. CA $686,000. replanning, reconditioning contracts;

James E. Smith Plumbing & Heating Co., Crittenden Dr., Louisville, Ky. CA $761,307. plumbing, heating, air-conditioning STATE CAPITOL, FRANKFORT, KY. State, Div. Engineering, Frankfort, Ky. Bids Oct. 29. CD 7/10, under LB.

▲ **Fourth Realty Co.**, c/o Al Gordon, Schmidt Bldg., Cincinnati, O. Own Forces. $1,500,000. development and constr. 150 HOME sites, Hollywoods Dr. and Hawthorne Ave., HIGHLAND HEIGHTS, KY. Awarded Nov. 2. CD 12/16.

John H. Kemp & G. E. King, Chattanooga Bank Bldg., Chattanooga, Tenn. Owner Builds. $600,000. 100 RESIDENCES, CHARLESTON, TENN.

John Martin Co., 610 W. Mannin St., Chattanooga, Tenn. LB $720,200. CHURCH addn., CHATTANOOGA, TENN. Lookout Mountain Presbyterian Church, 316 N. Bragg Ave., Lookout Mountain, Chattanooga, Tenn. Wm. Crutchfield, 809 Pine St., Chattanooga, Tenn., archt. CD 11/18/52.

Knoxville Elks Lodge No. 160, 114½ E. Vine Ave., Knoxville, Tenn., rejected bids LODGE BLDG., KNOXVILLE, TENN. LB $381,000. CD 10/23, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

Michigan—B.A. 11/24—State Hy. Dpt., 222 Townsend St., Lansing, altering water sys. in Normandy Ave. on John C. Lodge Expressway, BUI 82-128 C6 (BUI 404 73), Wayne Co. $260,000. Plans deposit $3, no refund.

† **Illinois**—B.A. 11/27—U. S. Eng., 420 Locust St., St. Louis 2, Mo., placing hydraulic fill in levee borrow pits, Harrisonville and Ivy Landing Drainage and Levee Dist., Proj. Item VI and Stringtown, Ft. Chartres and Ivy Landing Drainage and Levee Districts, Proj. Item V-A, Monroe and Randolph Counties, Inv. No. CIVENG-23-065-54-52. CD 12/8.

OHIO—B.A. 12/10—Ohio Turnpike Comn., 139 E. Gay St., Columbus,

Lucas Co.—Constr. Sect. 47, grading, drainage, structures, paving approx. 3.5 mi. from point approx. 226

ft. east of Ryan Rd. and extending eastwardly to point approx. 231 ft. east of River Rd., incl. 7 single bridges, 3 twin bridges and 5 box culverts for drainage, all bridges are steel beam of from three to five spans each.

Constr. Sect. 48, grading, drainage, structures, paving, approx. 4.3 mi. from point approx. 1,385 ft. east of Cressy Rd. and extending eastwardly to point approx. 226 ft. east of Ryan Rd., incl. 3 single bridges, 3 twin bridges and 2 box culverts for drainage, all bridges are steel beam bridges of from three to five spans each.

Constr. Sect. 49, grading, drainage, structures, and paving approx. 4.1 mi. from point approx. 2,205 ft. west of State Rte. 295 and extending eastwardly to point approx. 1,385 ft. east of Cressy Rd., incl. 3 single bridges, 2 twin bridges and 3 box culverts for drainage, one of the twin bridges which is of three spans is a steel girder bridge, all other bridges are of three to five spans each and are steel beam bridges. CD 1/15.

† **Ill., Scott Air Force Base**—GAS FACILITIES, etc.—B.A. 12/11—U.S. Eng., Merchandise Mart, Chicago, Zone 54, aviation gas facilities and aprons. CD 6/29/51.

BIDS ASKED—BUILDINGS

Ind., Hammond—GARAGE—B.A. 12/2—Northern Indiana Public Service Co., 5265 Hohman St., maintenance garage, Columbia and 167 Sts. $300,000. Hutton & Hutton, 5231 Hohman Ave., archts.

▲ **Wis., Wauwatosa**—HOSPITAL—B.A. 12/3—Milwaukee County Institutions & Dpts., 8731 Watertown Plank Rd., 9 story, bsmnt., 5,900,000 cu. ft. county hospital addns., alterations, $11,250,000. Plans deposit $100. Extended date. Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago, Ill., and Brust & Brust, 135 W. Wells St., Milwaukee, Zone 3, archts. CD 9/18.

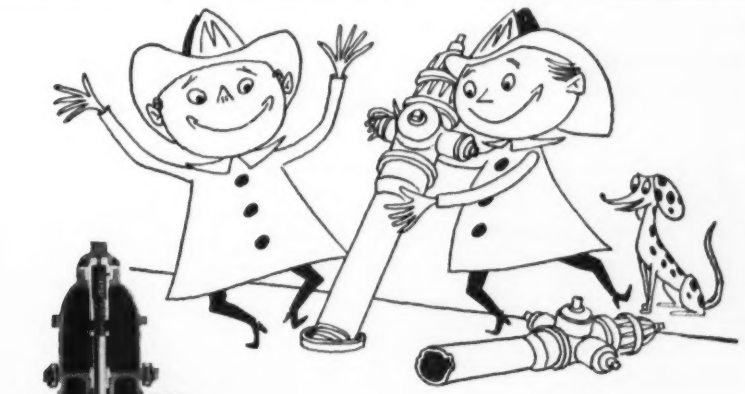
Mich., Pontiac — SCHOOL — Bids Asked — St. Benedict R. C. Parish, Pontiac, parochial school. $400,000. William C. Zimmerman, 831 W. Huron St., Pontiac, archt. CD 1/2.

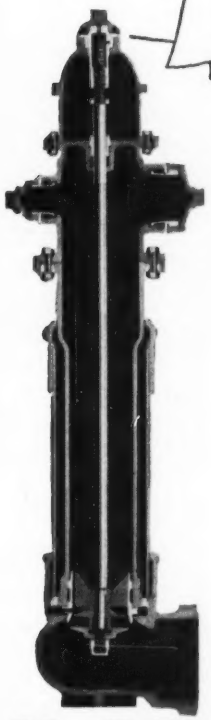
SOON LETS CONTRACT—BUILDINGS

Ill., Chicago—APARTMENT—Jeremiah S. James, 6030 Sheridan Rd., soon lets contract, 12 story, 1,115 unit apartment, 6118 Sheridan Rd. Shaw Metz & Dolio, 208 S. La Salle St., Zone 4, archts. CD 10/21.

Ill., Chicago—FACTORY—Permo, Inc., 6415 N. Ravenswood St., soon lets contract, 13,000 sq. ft. factory addn. for mfg. radio parts. Morton L. Pereira, 316 N. Michigan Ave., Zone 1, archt.

Mich., Detroit—UNION HALL—West Side Local 17 UAW, CIO, c/o Leinweber, Yamasaki & Heilmuth, archts., 112 Madison St., soon lets contract, 75x75





No other hydrant is so inexpensive to maintain— so quick and easy to repair

- **The Mathews Hydrant is so simply and soundly constructed that there's virtually nothing to go wrong.**
- **Only one point needs lubrication—the operating thread—and that only during routine inspections.**
- **A Mathews Hydrant broken in a traffic accident can be quickly repaired *without excavating* and nozzle levels can be adjusted with the same ease.**
- **For community fire protection, rely on Mathews Hydrants, the standard of the industry.**

MATHEWS HYDRANTS

Made by R. D. Wood Company

Public Ledger Building, Independence Square, Philadelphia 5, Pa.

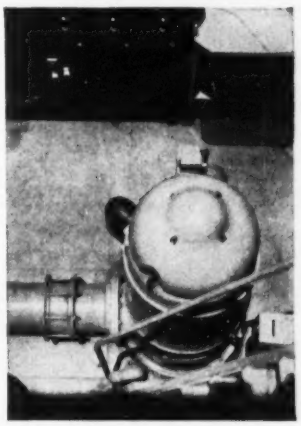
Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

150th anniversary

NO OTHER HYDRANT OFFERS SO MANY ESSENTIAL FEATURES

Compression type valve prevents flooding • Head turns 360° • Replaceable head • Nozzle sections easily changed • Protection case of "Sand-Spun" cast iron for strength, toughness, elasticity • All operating parts contained in removable barrel • A modern barrel makes an old Mathews good as new • Available with mechanical-joint pipe connections

Critical Jobs are routine for Johnston!



Take this Municipal Pumping Station, for example . . .

Over 40 years ago, the Sunnyslope Water Company of Pasadena, California installed their first Johnston Vertical Turbine Pump. Since then Sunnyslope has used Johnston equipment exclusively. There must be reasons for this kind of product acceptance. Here are a few . . .

Vertical design saves as much as 60% floor space, to say nothing of head room • Johnston Pumps need no priming—so can be installed to start and stop automatically, without expensive priming devices • Johnston Pumps are tough . . . They require practically no maintenance . . . and they'll handle jobs other pumps can't touch • Johnston Pumps are the cheapest pumps you can buy per year of service. Case histories prove it!

This is another example of the ability of Johnston equipment to handle all types of pumping jobs. Why not let our engineers consult with you on *your* special problem.

JOHNSTON

Send for free booklet about Johnston Pumps. Ask for Bulletin L-113

JOHNSTON PUMP COMPANY
3272 East Foothill Blvd.
Pasadena 19, California

JOHNSTON VERTICAL PUMPS

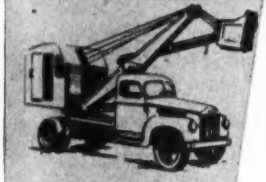
It takes a FULL team

...whether it's mushing

...or digging equipment

1. This is for big jobs

2. This is for medium jobs



3. Sherman for all other jobs

On many excavating jobs the use of big equipment is costly and time-consuming. The Sherman Power Digger is designed so that you get all the advantages of power digging on these jobs. Thousands of users have proved that the Sherman Power Digger reduces costs. Write today for descriptive literature. C48.

Designed, Engineered and Manufactured Jointly by

SHERMAN PRODUCTS, Inc.
Royal Oak, Michigan

WAIN-ROY CORPORATION
Hubbardston, Mass.

•

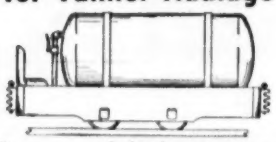
Patent No. 2,303,825
Other patents pending

Sherman

PRODUCTS, INC.
ROYAL OAK, MICHIGAN

Sherman SP Products

LOCOMOTIVES
for Tunnel Haulage



Compressed Air-Locomotives
DIESELS: 1½, 2 or 3 TON.
Equipped with Exhaust Scrubber for underground operation.

MAYO TUNNEL & MINE EQUIPMENT
LANCASTER, PA.

GUNITE
PNEUMATICALLY PLACED CONCRETE
DENSE · DURABLE · HIGH STRENGTH

for

Restoring Disintegrated Concrete
Dam, Dock and Bridge Repairs
Steel Encasement and Fireproofing
Sewer, Water Pipe and Penstock Linings
Stack and Bunker Linings
Wood Pile Casings—Pressure Grouting
Prestressed Tanks and Silos

Get in touch with us for engineering data and estimates

GUNITE CONSTRUCTION CORPORATION
420 LEXINGTON AVE., NEW YORK 17, N.Y.
MUrray Hill 3-7699

ft., 120x115 ft., and 25x60 ft., white brick union hall bldgs., connecting passageway, Warren and Cicotte Sts. $325,000. CD 7/2.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—Ohio Turnpike Comn., 139 E. Gay St., Columbus,

W. L. Johnson Constr. Co., Shook Rd., Groveport, O. CA $7,102,409, 8.1 mi. roadway, Constr. Sects. 36 and 37, Sandusky Co. Bids Oct. 29. CD 11/4, under LB.

American Asphalt Paving Co., 9701 Torrence Ave., Chicago, Ill., CA $169,430, resurf. E. 92 St. from Stony Island to Anthony Aves.;

Bituminous Paving Co., 2501 S. Salt St., Chicago, Ill. CA $104,855, b. conc. resurf. S. Indiana Ave., 22nd to 35 Sts.;

Standard Paving Co., 308 W. Washington St., Chicago 6, Ill., CA $144,809, b. conc. resurf. Grand Ave. from North Ave. to Sacramento Blvd., CHICAGO, ILL. City, City Hall, Chicago, Ill. Grand total $419,094. Awarded Nov. 4. CD 4/25/45.

▲ **Michael Pontarelli**, 4248 N. Kilpatrick St., Chicago, Ill., CA $1,342,615. auxiliary sewer Roscoe St., CHICAGO, ILL. City, City Hall, Chicago, Ill. Awarded Nov. 4. CD 8/13.

▲ **Santucci Constr. Co.**, 3025 Church St., Skokie, Ill. LB $3,235,351. West Side Subway from Clinton to Halsted Sts., CHICAGO, ILL. City, City Hall, Chicago, Ill. CD 10/19.

A. Grigano Co., R 4, Madison, Wis. LB $229,750. general contract greenhouse, MADISON, WIS. Bd. Regents, University of Wisconsin, Madison, Wis. Bids Oct. 29. CD 9/30.

James Constr. Co., 4115 N. Pt. Washington Rd., Milwaukee, Wis. LB $125,000. Storm sewers in Durand Rd., Sect. 4, RACINE, WIS. City, City Hall, Racine, Wis. Bids Oct. 30. CD 10/28.

BUILDINGS

LOW BIDS AND CONTRACTS

Frank Messer & Sons, Inc., Paddock Rd., Cincinnati, O., CA. GENERAL HEADQUARTERS BLDG. E. 6th St., CINCINNATI, O. Proctor & Gamble Co., Gwynn Bldg., Cincinnati, O. Voorhees, Walker, Foley & Smith, 101 Park Ave., New York 17, N. Y., archts. A. M. Kinney, Inc., 2905 Vernon Pl., Cincinnati, O., engr. Awarded Nov. 3.

▲ **Harry H. Richman & Assoc.**, 4200 Redwood Terrace, Cincinnati, O. Owner Builds. $5,000,000. 175 one-family, 1 and 1½ story brick, bsmnt. HOMES, opposite Daley Rd. Finneytown, CINCINNATI, O. Abraham Dombar, 4526 Bristol Lane, Cincinnati, O., archt. CD 6/2.

Gillmore-Olson Co., 1873 E. 55 St., Cleveland, O. CA $898,215. general contract, approx. 133,000 sq. ft. PLANT addn., Brookpark and Stumph Rds., PARMA, O. Chevrolet Div., General Motors Corp., 3044 W. Grand Blvd., Detroit, Mich. Fairbrother & George H. Myehles, 345 New Center Bldg., Detroit, Mich., engrs.-archts. CD 9/14, under O., Cleveland.

Chaman Street Realty, 3000 E. 46 St., Indianapolis, Ind. Owner Builds. $300,000. HOMES, northeast part of INDIANAPOLIS, IND.

Rock Wool Insulation Co., Inc., 2821 Clifton St., Indianapolis, Ind. Owner Builds. $300,000. HOMES in Willowmere Addn., INDIANAPOLIS, IND.

Brodbeck Co., 44 Virginia Ave., Indianapolis, Ind. Owner Builds. $300,000. HOMES in East Irvington, INDIANAPOLIS, IND.

▲ **S. N. Nielsen Constr. Co.**, 3059 Augusta Blvd., and **Wm. E. O'Neil**, 2751 Clybourn Ave., both Chicago, Ill., (identical bidders). LB $4,993,000, 2nd phase, HOUSING, 14 and S. Laflin Sts., three apartment bldgs. and 22 row houses, CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago 5, Ill. Bids Oct. 27. CD 9/25.

Shavilje & Knuth, 5688 N. Olcott St., Chicago, Ill., Owner Builds, $400,000, 25 HOMES, Higgins Rd. 1, CHICAGO, ILL.

▲ **E. H. Marhoefer Co.**, 505 La Salle St., Chicago 10, Ill., CA $4,000,000. 2 FREIGHT HOUSES, 1 freight transfer platform, Morton Park Station, CICERO, ILL. Chicago, Burlington & Quincy R.R., H. R. Clarke, ch. engr., 547 Jackson Blvd., Chicago 6, Ill. Bids Nov. 2. CD 11/2.

Bulley & Andres, 1755 W. Fullerton St., Chicago, Ill. CA $350,000. 50,000 sq. ft. FACTORY addn., MORTON GROVE, ILL. Dole Valve Co., Lehigh and Oakton Aves., Morton Grove, Ill. Jessions Eng. Co., 1 N. LaSalle St., Chicago 1, Ill., engr. Awarded Nov. 3.

▲ **Sedler Constr. Co.**, Oak Lawn, Ill. Owner Builds, $1,200,000, 100 HOMES, OAK LAWN, ILL.

▲ **Chesterfield Builders**, 3453 Devon Ave., Skokie, Ill., Owner Builds, $10,000,000. 500 HOMES, SKOKIE, ILL. Adam Hydzik, 4901 Parker Ave., Chicago, Ill., archts.

Permanent Constr. Co., 4100 N. Third St., Milwaukee 12, Wis. CA 35,000 sq. ft. WAREHOUSE, 15,000 sq. ft. OFFICE, MILWAUKEE, WIS. Taylor Electric Co., 112 N. Broadway, Milwaukee 2, Wis. R. E. Rasche, 783 N. Jefferson St., Milwaukee 2, Wis., archt. CD 1/27.

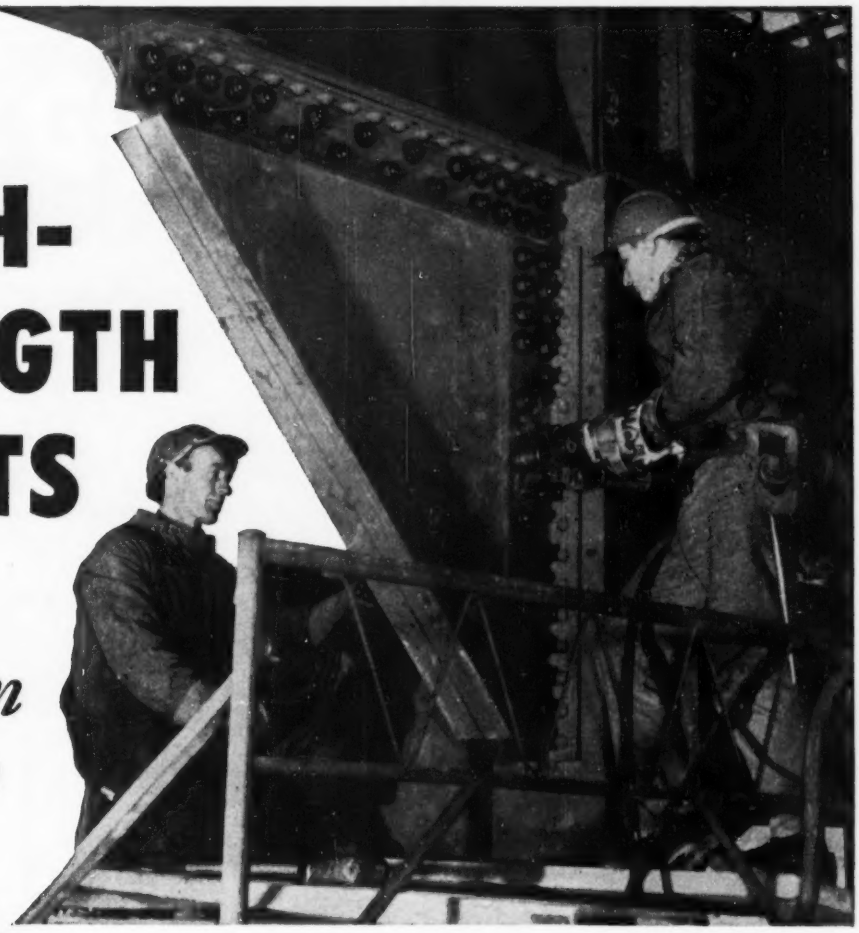
Precour Constr. Co., 1117 N. Bowen St., Oshkosh, Wis. LB $372,900. 2 story, 60x160 ft. HIGH SCHOOL addn., NEENAH, WIS. Bd. Educ., Neenah, Wis. Bids Oct. 30. CD 10/13.

† **Panellit, Inc.**, 6312 N. Broadway, Chicago 40, Ill. CA $712,803. instrumentation equip. sys. for components LABORATORY and for vehicular high temperature cell, Detroit Arsenal, ENG-20-064-54-16, DE-

(Continued on page 111)

HIGH-STRENGTH BOLTS

Save Erection Time



Erection of steelwork can be accomplished in less time when you use Bethlehem High-Strength Bolts to join the structural members.

Used in place of field-driven rivets, Bethlehem High-Strength Bolts are installed by a crew of only two men. One man operates an impact wrench, the other a holding wrench. No other tools are needed.

In installing these high-strength bolts, two hardened washers are placed on each bolt, one washer going under the head, the other under the hexagonal nut. This makes possible the development of maximum clamping force, without deforming the connected material.

Where the bolts pass through beam- or channel-flanges having a sloping inner face, a bevel washer provides a square seat for the bolt head or nut. The bevel washer is made in two types, for use with wide-flange beams and with standard beams or channels.

Bethlehem High-Strength Bolts are made at our fasteners plant at Lebanon, Pa. They are heat-treated by quenching and tempering, to meet the requirements of ASTM Specification A-325.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

New Booklet on Bolted Construction

We've just issued a 16-page booklet, "High-Strength Bolting for Structural Joints," giving detailed technical information about the advantages of high-strength bolts in erecting steelwork. Two colors, illustrated. If you would like to have a copy, write to Publications Dept., Room 1039, Bethlehem Steel Company, Bethlehem, Pa.

A GOOD BENDER IS A "MUST" - BUT A PERFECT JOB DEPENDS ON

GOOD PIPE

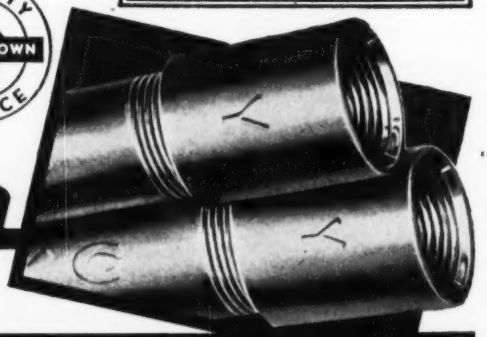
ON a radiant heating job, it's a pleasure to work with Youngstown pipe. It bends readily to a true arc without flattening. That's because it is uniformly soft and ductile, and soundly welded in manufacture by the Youngstown continuous-weld process. The name "Youngstown", rolled into every length, is your assurance that it's GOOD PIPE.

7 POINTS OF UNIFORM GOODNESS IN

YOUNGSTOWN STEEL PIPE

- uniform ductility
- uniform lengths
- uniform threading
- uniform weldability
- uniform wall thickness and size
- uniform strength and toughness
- uniform roundness and straightness

QUALITY V YOUNGSTOWN SERVICE



Youngstown STEEL PIPE

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel

General Offices: Youngstown, Ohio - Export Office: 500 Fifth Avenue, New York 36, N. Y.

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT - MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - BAR SHAPES - WIRE - HOT ROLLED RODS - COKE TIN PLATE - ELECTROLYTIC TIN PLATE - RAILROAD TRACK SPIKES

(Continued from page 108)

TROIT, MICH. U. S. Eng., 1900 Cadillac Tower, Detroit, Mich. Bids Nov. 4. CD 10/9.

Proksch Constr. Co., Iron River, Mich. CA Est. $650,000. 2 story, brick, steel, concrete Francis A. Bell Memorial HOSPITAL, ISHPEMING, MICH. Ishpeming-Negaunee Hospital, D.D. Batterly, pres. Bd. Trustees, Ishpeming, Mich. CD 10/1.

Sunningdale Homes, 14300 Cloverdale St., Livonia, Mich. Owner Builds. $550,000. 50 single brick HOMES, Deering, West Chicago, west of Telegraph Rd., LIVONIA, MICH.

▲ **Southwestern Engineering Co.**, 4800 S. Santa Fe St., Vernon, Calif. CA Est. $3,000,000. developing, installing catalytic polymerization unit at REFINERY, SAGINAW, MICH. Bay Refining Co., 1201 Second National Bank Bldg., Saginaw, Mich.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

Okla., Tulsa—B.A. 12/1—City, City Hall, sewage disposal plant addn. $500,000. Plans deposit $15. Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs. CD 3/5/52.

† **Okla., Ardmore**—PARACHUTE BLDG.—B.A. 12/3—U.S. Eng., Box 62, Tulsa, parachute bldg., Ardmore Air Force Base, ENG-34-066-54-27. $100,000. Extended date. CD 10/27.

† **Texas**—B.A. 12/4—U.S. Eng., Box 1229, Galveston, repairing North-South jetties at Brazos Santiago Pass. Port Isabel, Inv. No. CIVENG-41-243-54-37. $500,000-$1,000,000. CD 11/10.

Kan., Salina—B.A. 12/9—City, at office Harold E. Peterson, clk., water softening plant, 2 story, 87x90 ft., concrete, masonry filter bldg., 34x100x62 ft. high chemical bldg., 3 softening basins, settling basin, WW piping, valves, equipment. Plans deposit $50. Wilson & Co., 223 N. Santa Fe St., engrs. CD 5/6.

† **Mo., Grandview**—ADMINISTRATING and TRAINING BLDG.—B.A. 12/11—U.S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., A.F.R.T.C. admin. and training bldg., Grandview Air Force Base, ENG-54-31. Burns & McDonnell Eng. Co., Box 7088, Kansas City, Mo., engr. CD 10/28.

† **Mont., Great Falls**—HOSPITAL and DENTAL CLINIC—B.A. About 12/18—U.S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., 76-bed hospital and dental clinic, Great Falls Air Force Base, ENG-45-108-54-80. Plans deposit $40 for hospital, $10 for clinic. CD 3/6, under LB. and 9/19/51.

† **Okla., Altus**—HOSPITAL—B.A. 1/12—U.S. Eng., Box 61, Tulsa, Zone 2, 50-bed hospital, Altus Air Force Base, Inv. No. Eng-34-066-54-13. $700,000. CD 10/13, under LB.

Texas—OIL PIPE LINE—Bids Asked—Cities Service Pipe Line Co. M. Esperson Bldg., Houston. 60 mi. 12 in. crude oil pipe line, Houston to Sour Lake. $850,000. CD 3/13/52.

BIDS ASKED—BUILDINGS

Tex., Baytown—HIGH SCHOOL—B.A. 12/1—Goose Creek Independent School Dist., Baytown, Robert E. Lee Senior High School, home economics bldg., vocational shop bldg. $327,000. Lowell Lammers, Box 3220, archt. H. E. Bovay, Jr., M. Esperson Bldg., Houston, engr. CD 8/26.

▲ **Minn., Northfield**—SCHOOLS—B.A. 12/2—Bd. Educ., K. W. Wegner, clk. Washington Grade School addn., $350,000; Junior High School addn., $1,140,000. Extended date, Magney, Tusler & Setter, 202 Forshay Tower, Minneapolis archts. CD 10/20.

Neb., Kearney—DORMITORY, etc.—B.A. 12/2—State Rd. Control, Lincoln, dormitory. Unthank & Unthank, 527 Sharp Bldg., Lincoln, archts.; grade and high school, Helleberg & Helleberg, Kearney, archts. $400,000. CD 4/10 and 7/17.

Tex., Big Spring—HOSPITAL—B.A. 12/3—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, 375-bed ward bldgs. and central kitchen for State Hospital. $950,000. Carroll & Daeuble, 1001 E. Yandell St., El Paso, archts. Landauer & Shafer, 4801 Lemmon St., Dallas, engrs. CD 10/8.

Mont., Helena—LABORATORY—B.A. 12/8—State Bd. Examiners, Helena, 2 story, rein.-con., W-shaped state laboratory. $900,000. Extended date. V. H. Walsh, Helena, archt. CD 11/5.

▲ **Tex., Austin**—HOSPITAL—B.A. 12/10—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts., 5 story 216-bed brick exterior, concrete-steel frame, etc., Medical and Surgical Hospital unit and Laboratory, for Austin State Hospital. $1,200,000. Jessen, Jessen, Millhouse & Greeven, 2816 Hemphill Park, archts., Walter C. Moore, c/o owner, superv. archt. CD 11/18/52.

† **N. M., Albuquerque**—ADMINISTRATION—B.A. About 12/16—U.S. Eng., P.O. Box 1538, 2108 Central Ave. S.E., one 2 story, T-shaped, 42x388 ft. and 42x125 ft. masonry admin. bldg., exterior utilities, incl. steam, water, sewer, gas and electrical work; placing hot mix paving, concrete curb and gutters, concrete sidewalks, Sandia Base, Serial No. ENG-29-005-54-46.

HEAVY CONSTRUCTION

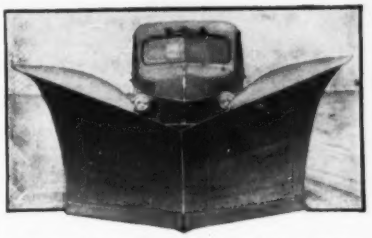
LOW BIDS AND CONTRACTS

▲ **Bates & Rogers Constr. Corp.**, 600 W. Jackson St., Chicago, Ill. LB $655,221. Contr. 4C and 5C, decks and hand rails;

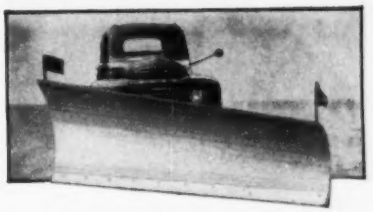
J. A. Tobin Constr. Co., 3700 Rainbow Blvd., Kansas City, Kan. LB $1,130,942. Contr. 9, paving;

(Continued on page 114)

FACE WINTER CONFIDENTLY WITH GLEDHILL SNOW PLOWS



V-Plow—Extra heavy construction, interchangeability, direct lift, long-wearing shoes, feature this model. It's a favorite with State Highway Departments.



One-Way Speed Plow — Crimped blade means better earation, longer throw. Automatic trip, adjustable height casters contribute to this model's popularity.

● They are a grand team — these Gledhill Plows! And you're by no means limited to two! There are 23 models and sizes to choose from.

You can deliver "Open Roads" whether main highways or country by-ways, if you equip your snow men with Gledhills.

Performance and satisfaction are such that Gledhill sales grow steadily — year after year.

Send for details so you can order now!

THE GLEDHILL ROAD MACHINERY CO.
GALION, OHIO

FREE! SOIL SAMPLING CATALOG

OVER 80 ILLUSTRATIONS

33 YEARS IN THE MAKING

This complete, instructive collection of information about soil sampling in all subsurface conditions, shallow or deep, with hand or power driven tools, is yours for the asking. Modern sampling techniques are discussed with recommendations as to tools and accessories best suited for fast, accurate, economical sampling.

Use the coupon or write for Bulletin 25.

REMEMBER, Acker also makes a complete line of Diamond and Shot Core Drills, Drilling accessories and equipment.

★

ACKER DRILL COMPANY, INC.
Scranton, Pa.
Pioneers in Soil Sampling

Send me my free copy of Bulletin 25, ENR

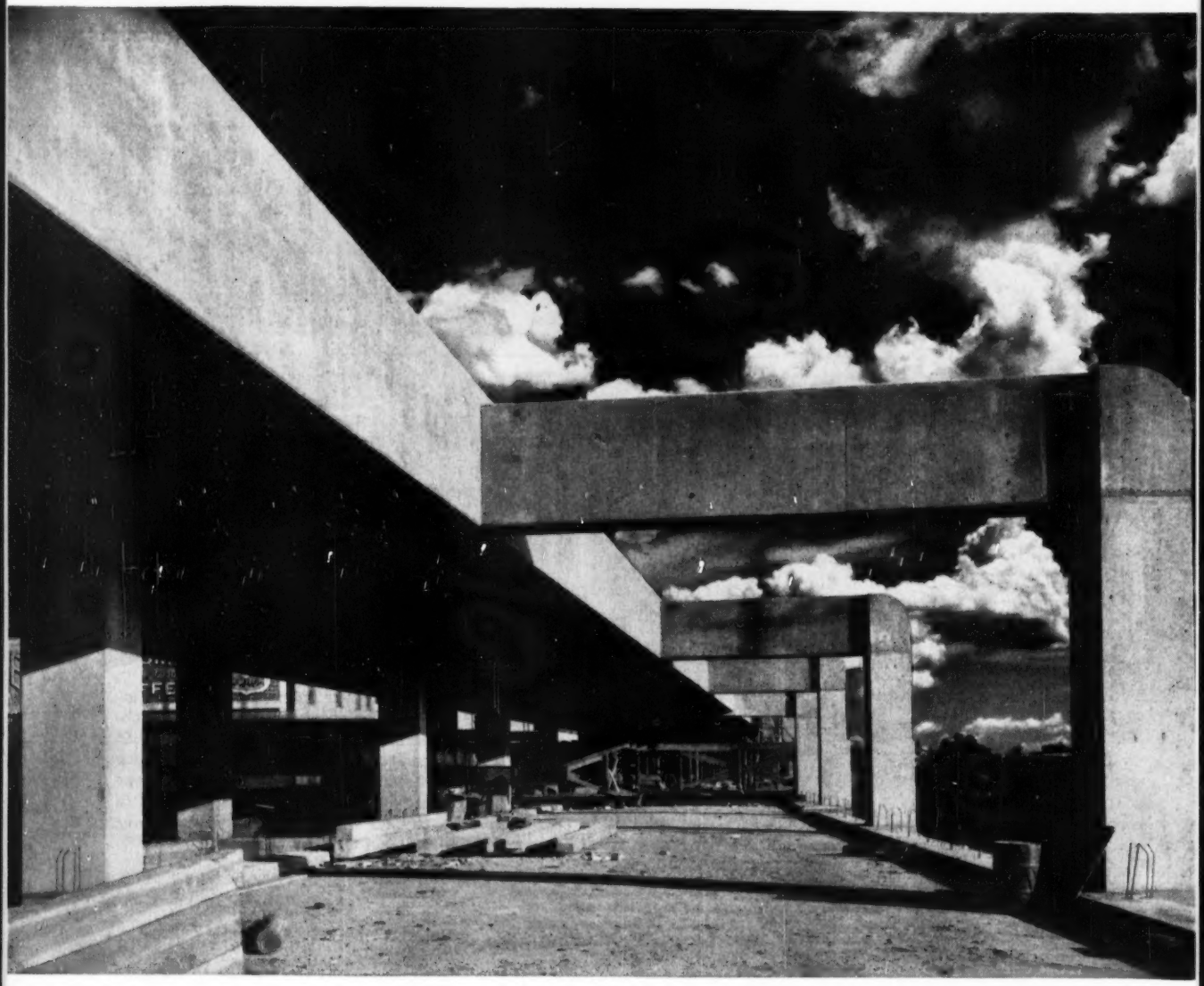
Name _____ Title _____

Firm _____

Street _____

City _____ State _____

Highway viaduct demonstrates **THREE**



Fir plywood solved complex form problem on Alaskan Way Viaduct. Double-decked structure .77 miles long required only 400,000 square feet of plywood.

KEY ADVANTAGES OF FIR PLYWOOD CONCRETE FORMS

Beam and girder bottom forms were built up inside standard vertical form panels in what contractor called "floating beam bottoms." System simplified handling of variable beam and girder depths.

1. TIME AND LABOR SAVINGS

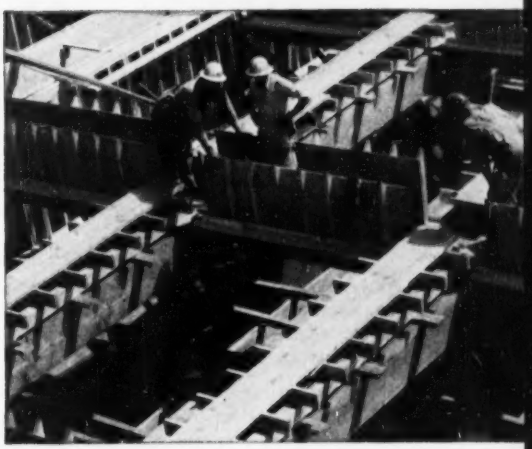
On this six-lane highway viaduct along the Seattle, Washington; waterfront, standardized re-usable plywood form sections helped complete the job months ahead of schedule. Exterior-type fir plywood was used to fabricate the form panels for beams, girders and roadway.

2. ECONOMY THROUGH RE-USE

About 400,000 square feet of ⅝" fir plywood was required for the .77 mile structure. Contractors reported an average of four re-uses. About 25% of the plywood forms gave seven to eight re-uses. In some cases forms withstood 10 uses. Other forms gave additional uses after re-facing with ¼" fir plywood.

3. SMOOTH, FIN-FREE CONCRETE

The smooth surfaces obtained with the plywood forms cut finishing to a minimum, the contractor reports. The only finishing work required was filling of tie-holes and beads, which were ground and sacked. Job Superintendent John Rumsey. Jr. says: "Fir plywood solved a complex form problem for us and speeded work all along the line."



Pattern of plywood forms for girders and cross beams is shown here. Standard panels for shallow cross beams and shallow center beams were not as high as those for girders. Contractor built forms for 660 feet of viaduct at a time.

SPECIFY DFPA INSPECTED FIR PLYWOOD

These registered industry trademarks are your guide, guard and assurance of DFPA quality-tested fir plywood manufactured especially for concrete form work. INTERIOR PLYFORM (highly moisture-resistant glue) gives multiple re-use, up to 12-15 are not unusual. For maximum re-use, specify EXTERIOR PLYFORM (100% waterproof glue). For special architectural concrete use fir plywood with "A" face veneer or one of the new overlay-faced or hardboard faced fir plywoods identified by this star and link industry hall mark of quality.

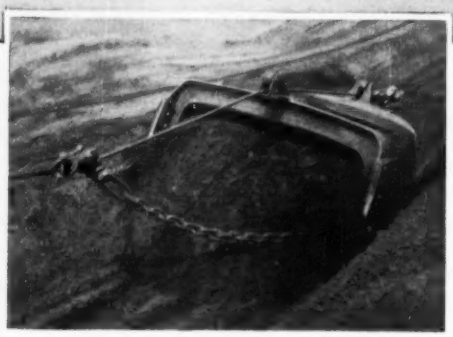
A Product of the Plywood Industry

For further information write Douglas Fir Plywood Association, Tacoma 2, Washington.

ALASKAN WAY VIADUCT
LOCATION: Seattle, Washington
CONTRACTORS: Morrison-Knudsen Co., Inc.
Rumsey and Company

ONE MAN CONTROL

DIGGING • HAULING
AUTOMATIC DUMPING



You can cut handling costs by using a

SAUERMAN SCRAPER

Here's How—Sauerman Scrapers move sand and gravel, ore, crushed stone, coal and other bulk material rapidly . . . . Normal operating speeds using a Sauerman Hoist are 250 fpm. on the inhaul with loaded bucket and 500 fpm. on the outhaul with empty bucket.

Its versatile working range enables you to work a small area or reach out 1,000 feet or more. Sauerman Scrapers travel across a river or wide stockpile, up to the top of a hill or down into a deep pit.

Initial investment is moderate and maintenance costs are low, since only the most expendable parts of the Sauerman Scraper contact the material with which it is working. The bottomless scraper bucket is designed for maximum strength with minimum weight. The result is economy in power consumption, gasoline, diesel or electric.

Add to these advantages, the labor costs of just one man—situated in a safe location overlooking the work site—controlling the entire job operation . . . and you obtain an efficient, economical installation. Sauerman Scrapers range in size from 1/3 to 15 cubic yards. Write for Catalog A: Power Drag Scrapers or Catalog E: Bulk Storage By Power Scraper.

SAUERMAN BROS., Inc.
532 S. Clinton St., Chicago 7, Ill.

ONE MAN MATERIALS HANDLING

SAUERMAN BROS., INC.

More NEW IDEAS

HOW TO DIG A CLEAN PIT
Rapid shifting equipment spots scraper exactly where wanted. Pit is not rutted, excavation is taken down evenly. EFR 205.

TAUTLINE HANDLES QUARRY STONE
118-foot derrick head mast with 80-foot wooden tail mast allows load to coast down to discharge point. EFR 106.

DIGGING GRAVEL FROM A RIVER
Stackline cableway digs aggregate from a river bar over a 700-ft. span, conveying and automatically dumping into hopper. Lateral shifting of the cableway permits working material at all times. EFR 102.

SEGREGATED ORE STORAGE
Separate grades of ore are stockpiled by scrapers and arranged for dual operation on one pile or with each machine working a separate pile. EFR 104.

STOCKPILING 300,000 TONS OF COAL
Storing and reclaiming is handled by a 10-cu. yd. scraper machine at a large utility. EFR 201.

SIZED SAND AND GRAVEL
Five sizes are stockpiled by five scrapers. Storage piles also serve as ramps for truck loading. One man operation of entire system. EFR 221.

WET CLAY HANDLING
1-cu. yd. Crescent Scraper digs clay for a cement plant. Fifty tons per hour are discharged into an elevated truck hopper. EFR 204.

RECLAIMING INDUSTRIAL WASTE
Two million tons of coal silt are being reclaimed by rapid-shifting scraper. It is processed into fuel for two generating stations. EFR 212.

BULK SUGAR STORAGE
Specially designed scraper buckets cut cost of handling sugar in warehouses and unloading ships. EFR 217.

SAUERMAN NEWS
Removing river bars, excavating under a building, paving under Mississippi, scraper equipped self-unloader boats. SND 137.

REQUEST BY NUMBER—SAUERMAN BROS., INC., 532 South Clinton Street, Chicago 7, Illinois

(Continued from page 111)

Swenson Constr. Co., 3305 Terrace St., Kansas City, Mo. LB **$268,510.** deck, handrails, for viaducts on Missouri River Bridge at Paseo, KANSAS CITY, MO., Jackson Co., Court House, Independence, Mo. Bids Oct. 30. CD 10/13.

▲† **Mittry Constructors**, 4801 San Fernando Rd. West, Los Angeles, Calif., CA **$9,459,584.** outlet works, Stage I, Oahe Reservoir Proj., near Pierre, Inv. 25-066-54-13, SOUTH DAKOTA. U.S. Eng., 1709 Jackson St., Omaha, Neb. Bids Oct. 21. CD 10/23, under LB.

† **Davies Constr. Co.**, Rapid City, S. D., LB **$132,899.** dental clinic, Ellsworth Air Force Base, Inv. 25-066-54-30, RAPID CITY, S. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Nov. 3. CD 10/7.

KANSAS—State Hy. Comn., Topeka,

Clarkson Constr. Co., 4133 Gardner Ave., Kansas City, Mo. CA **$190,318.** grading 1.065 mi. Proj. 40-89 ER 68, Shawnee Co. Bids Nov. 5. CD 10/23.

Walters Sand Co., Manhattan, Kan. CA **$139,950.** general contract sewage plant, CLAY CENTER, KAN. City, Clay Center, Kan. A. C. Kirkwood & Assoc., 3102 Troost St., Kansas City, Mo., engrs. Bids Oct. 27. CD 5/12.

Sinclair Pipe Line Co., 2119 Lefland St., Dallas, Tex. Own Forces. **$236,500,** some crude oil lines, north of Pauls Valley area, OKLAHOMA. CD 10/28.

U. S. Pipe & Foundry Co., Bryant Bldg., Kansas City, Mo., CA **$158,867,** est. $160,000. 13,572 ft. c.i. pipe and 53 tons fittings, TULSA, OKLA. City, City Hall, Tulsa, Okla. Bids Oct. 27, awarded Nov. 5. CD 10/20.

TEXAS—State Hy. Comn., Austin,

Farnsworth & Chambers Co., Inc., P.O. Box 74, Houston, Tex. CA **$596,138,** 0.295 mi. T. & N. O. & G. C. & S. F. R.R. overpass in Beaumont, Hy. U.S 90, Jefferson Co Bids Oct. 20, awarded Oct. 27. CD 10/26, under LB.

TEXAS—State Hy. Comn., Austin,
cancelled bids to have been opened Nov. 24, grading, structures, base and surf. 3.996 mi. hy. FM 780, Ellis Co.; grading, structures, base and surf. 5.989 mi. Hy. FM 1926, Proj. R 1804-1-2, Hidalgo Co. CD 10/30.

Reising Constr. Co., Edinburg, Tex., CA **$225,000,** concrete lined mains for irrigation proj.;

Own Forces. $95,000, lateral ditching for irrigation proj.;

Purchase and Hire. $63,500, laying some irrigation concrete pipe lines, McALLEN-MONTE CRISTO, TEX. Grand total $383,500. Louis A. Hexter & Assocs., 1312 Main St., Dallas, Tex. CD 10/28.

▲ **C. H. Leavell & Co.**, 1900 Wyoming St., El Paso, Tex. CA **$1,141,726.** sewage treatment plant imprvs., ALBUQUERQUE, N. M. City, City Hall, Albuquerque, N. M. Bids Oct. 6, awarded Nov. 3. CD 11/6, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

E. R. Conry, 2828 Harriet Ave., Minneapolis, Minn. Owner Builds. **$170,000.** 1 story, 150x200 ft., WAREHOUSE and OFFICE, Wayzata Blvd., GOLDEN VALLEY (P. O. MINNEAPOLIS), MINN. I. E. Engler, 1406 Lake St., Minneapolis, Minn., archt.

Universal Constr. Co., Scarritt Bldg., Kansas City, Mo. CA Est. **$500,000.** WAREHOUSE, GRANDVIEW, MO. Chas. A. Gambrill and Norval Smith, realtors, representatives for owner, Temple Bldg., Kansas City, Mo. Geo. E. McIntyre, 1004 Baltimore St., Kansas City, Mo., archt. Fairfax Storage Co., Bannister Rd. and Troost St., Kansas City, Mo., lessee.

Universal Constr. Co., Scarritt Bldg., Kansas City, Mo. CA Est. **$500,000.** 1 story, 260x396 ft. WAREHOUSE, GRANDVIEW, MO. Kansas City Southern Ry. Co., E. F. Salisbury, ch. engr., Kansas City Southern Bldg., Kansas City 5, Mo.

▲ **Brown & Root, Inc.**, Box 3, Houston, Tex., CA **$15,000,000.** natural-gasoline PLANT, 3,571 bbl. daily capacity gasoline and 41-tons sulfur, daily, TIOGA, N. D. Signal Oil & Gas Co. and Amerada Petroleum Corp., Beacon Bldg., Tulsa, Okla. CD 3/18, under N. D., Williston.

Henry H. Hackett & Sons, Inc., Rapid City, S. D., CA **$550,943.** general constr., state highway OFFICE and LABORATORY BLDG., PIERRE, S. D. State of South Dakota. Pierre, S. D. Bids Nov. 3 CD 10/9.

Tulsa Rig & Reel Co., Philtower Bldg., Tulsa, Okla. LB **$187,341,** est. $225,000, 7 story auto HOTEL addn., TULSA, OKLA. Tulsa Auto Hotel, Inc., 515 Cincinnati Ave., Tulsa, Okla. CD 10/5.

Grammar Constr. Co., 734 Mohawk Blvd., Tulsa, Okla., LB **$575,000,** est. $650,000, Jewish TEMPLE, 22nd and Yorktown Sts., TULSA, OKLA. Temple Israel Congregation, 16 and Rockford Sts., Tulsa, Okla. CD 6/26.

Marvin Braswell, 909 Stark St., Austin, Tex. Owner Builds. **$337,000.** Northgate SHOPPING CENTER MART, AUSTIN, TEX. CD 10/28.

▲ **G. E. Bass & Co.**, P.O. Box 1033, Jackson, Miss., CA **$1,029,033,** 150 HOUSING units, BEAUMONT, TEX. Beaumont Housing Auth., Hotel Beaumont, Beaumont, Tex. Bids Nov. 4. CD 10/13.

Andrews-Parker, Inc., Box 927, Bryan, Tex., LB **$325,000.** HIGH SCHOOL, AUDITORIUM and Lincoln School GYMNASIUM, COLLEGE STATION, TEX. A. & M. Consolidated School Dist., College Station, Tex. Bids Nov. 5. CD 10/7.

▲ **Alford Plumbing & Heating Co.**, 2227 Cedar Crest Blvd., Dallas, Tex., LB **$683,056,** heating, plumbing, ventilating, air-conditioning, sprinkler sys.;

Harmon Electric Co., 4311 Belmont St., Dallas, Tex., LB **$363,460,** electrical work for 27 story OFFICE, DALLAS, TEX. Leo F. Corrigan Properties, Mercantile Bank Bldg., Dallas, Tex. Bids Oct. 30. CD 4/16.

Cowdin Bros., 411 S. Haskell St., Dallas, Tex. CA $319,125. tripling capacity existing MERCANTILE, 56 Highland Park Village, DALLAS, TEX. Volk Bros. Co., 1608 Elm St., Dallas, Tex. CD 6/16.

Ivy Oaks Corp., c/o Jas. P. Grizzard, San Jacinto Blvd., Houston, Tex. Owner Builds. $300,000. 34 DWELLINGS, HOUSTON, TEX. CD 10/28.

House Beautiful Homes, Inc., 3100 Travis St., Midland, Tex., Purchase and Hire. $328,750, approx. 75,000 sq. ft. masonry SHOPPING CENTER unit, MIDLAND, TEX. CD 5/13.

Bell Hotel Co., Inc., Sherman, Tex., will not construct 4 story bsmnt. HOTEL, SHERMAN, TEX. $350,000. Project abandoned. CD 10/14.

▲ **M. W. Kellogg Co.**, M. Esperson Bldg., Houston, Tex., CA $9,785,000. catalytic reforming REFINERY unit, TEXAS CITY, TEX. Pan American Refining Corp., Texas City, Tex. P. E. Darling, c/o owner, ch. engr. CD 11/23/51.

Farnsworth & Chambers Co., Inc., 3018 Leeland St., Houston, Tex., CA polyethylene production PLANT, TEXAS CITY, TEX. Monsanto Chemical Co., Texas City, Tex. CD 4/28/47.

▲ **Fluor Constr. Ltd.**, 176 Broadway, New York, N. Y. CA Total est. $4,000,000. (1st unit) FLUID COKING UNIT, incl. 120 ft. tower, 9 platform floors, at existing refinery, BILLINGS, MONT. Carter Oil Co., Medical Arts Bldg., Billings, Mont. CD 9/8.

† **Lembke, Clough & King**, P.O. Box 455, Albuquerque, N. M. CA $518,000. Constr. 3 DORMITORIES, for Shiprock School, SHIPROCK, N. M. Bureau Indian Affairs, Dpt. Interior, Interior Bldg., 19 and C Sts. N.W., Wash., D. C. Bids Oct. 27, awarded Nov. 3. CD 11/2, under LB.

FAR WEST

BIDS ASKED—BUILDINGS

▲ **Calif., Anaheim**—HIGH SCHOOL—B.A. 12/1—Anaheim High School Dist., Anaheim, 60,000 sq. ft. Junior High School, Western Ave., and Orange St., $1,000,000. Plans deposit $50 Marsh, Smith & Powell, 208 W. 8 St., Los Angeles, archts. CD 2/12.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

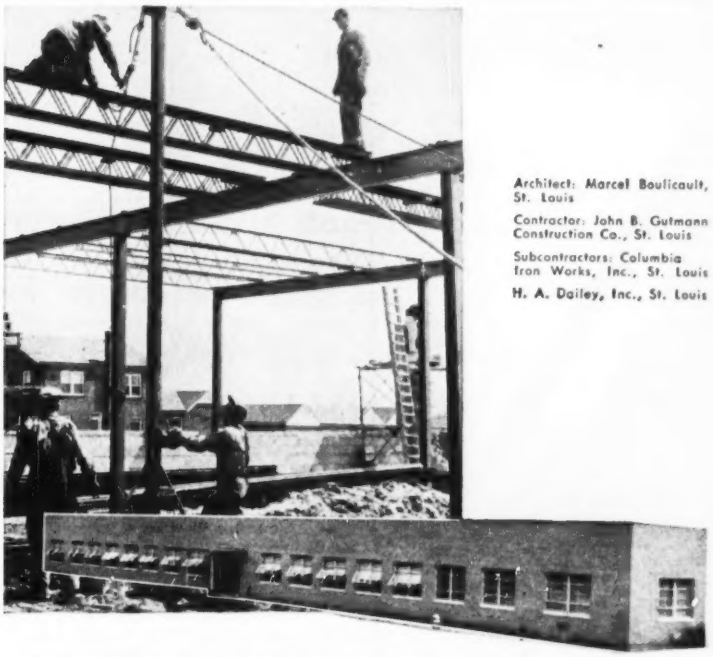
† **IDAHO**—Bureau P. Rds., 609½ Bannock St., Boise,

Triangle Constr. Co., 3507 Crescent Rim Dr., Boise, Idaho LB, $369,750, clearing, grubbing, grading, draining 8.8 mi. Rock Creek-Cold Springs Rd., Clearwater Co. Bids Oct. 30. CD 10/21.

† **IDAHO**—Bureau P. Rds., Dpt. Commerce, 609½ Bannock St., Boise,

Aslett Constr. Co., Twin Falls, Idaho, LB, $113,764 surf. 11.2 mi. Sawtooth Park Highway, Lemhi Co. Bids Nov. 3. CD 10/23.

▲ **R. H. Fulton Co.**, Box 1526 Lubbock, Tex., CA Approx. $2,217,500. 117 mi. 10¾ in. gas lines from Topock, ARIZONA to Las Vegas, NEVADA.



Architect: Marcel Boulicault, St. Louis

Contractor: John B. Gutmann Construction Co., St. Louis

Subcontractors: Columbia Iron Works, Inc., St. Louis

H. A. Dailey, Inc., St. Louis

65,000 sq. ft. Building Erected in *60 Days* with LACLEDE CONSTRUCTION STEELS

Laclede Steel service and construction know-how combined to give Ritepoint Company of St. Louis a new permanent-type building in a hurry. The short completion time resulted from using Laclede steel joists, reinforcing bars and welded wire fabric.

LACLEDE — Producers of Construction Steel

LACLEDE STEEL COMPANY
St. Louis, Mo.

IMPORTANT

before you write

the specifications on DRAINAGE PRODUCTS

Call Josam

ROOF DRAINS

for all types of roof construction and conditions

FLOOR DRAINS

for every type of floor drainage condition

INTERCEPTORS

for grease, oil, gasoline, hair, sediment, etc.

BACKWATER VALVES

to prevent water from sewers backing up into basements

AREA DRAINS

for Boiler Rooms, Coal Bins, Ash Pits, Kitchens, etc.

SWIMMING POOL FITTINGS

inlets, outlets, gutters, overflows, etc.

● Selecting and specifying the plumbing drainage products for any project can be a difficult time-consuming job. Why do this, when you can have authoritative help at your fingertips? Josam has the widest range of plumbing drainage products in the world and can supply you with a complete list of these products for every type of project—illustrated and described in new Catalog "K". Leading engineers use it constantly—or call on the nearest Josam Representative whenever plumbing drainage products are needed. Get your copy of Josam Catalog "K" by sending coupon below today:

JOSAM MANUFACTURING COMPANY
Dept. NR
Michigan City, Ind.

Josam

Please send free copy of Josam Catalog "K"

Name .....

Firm .....

Address .....

City ..... Zone State .....

BROWNHOIST BUILDS BETTER BUCKETS,
● BUY DIRECT FROM FACTORY FOR LESS
● ROPE REEVE, POWER WHEEL
● WRITE FOR CATALOG

INDUSTRIAL BROWNHOIST CORPORATION
BAY CITY, MICHIGAN
157

Prompt, competent Contract Bond Service

ÆTNA CASUALTY AND SURETY COMPANY
Affiliated with
Ætna Life Insurance Company
HARTFORD 15, CONNECTICUT

TEST BORINGS for
• COAL
• MINERALS
• DAMS & BRIDGES
• BUILDINGS
We Lead into the Earth
PENNSYLVANIA Drilling CO.
DRILLING CONTRACTORS AND MFRS.
PITTSBURGH 20, PA.

Nevada Natural Gas Co., 202 North 2nd St., Las Vegas, Nev. CD 6/16, under LB.

OREGON—State Hy. Comn., Highway Bldg., Salem,
Peter Kiewit Sons Co., Longview, Wash., CA **$636,970,** 1,637 ft. concrete, steel deck truss bridge over North Umpqua River and railroad tracks, Pacific Hy. FAP BFI-69 (2), Douglas Co.;
Young & Smith Constr. Co., Grants Pass, Ore., CA **$189,294** Halsey St. undercrossing, Banfield Expressway, FAP UI-323 (3), Multnomah Co. Bids Oct. 30. CD 10/20.

▲ OREGON—State Hy. Comn., Highway Bldg., Salem,
R. A. Heintz Constr. Co., 211 N. E. Columbia Blvd., Portland, Ore., CA **$925,904,** grading, paving 4.34 mi. FAP BFI-131 (15); paving 4.91 mi., FAP BFI-131 (16), Pacific Hy., Jackson Co.;
Durbin Bros., Eugene, Ore., CA **$328,695,** grading 8.73 mi. Goshen Coast Fork, Pacific Hy., FAP BFI-161 (19), Lane Co. Bids Oct. 29. CD 10/20.

OREGON—State Hy. Comn., Highway Bldg., Salem,
Gibbons & Reed, 259 W. 3rd South St., Salt Lake City, Utah, CA **$702,032,** 2.93 mi. grading, five detour bridges, 42nd Ave., 92nd Ave. sect., Banfield Expressway, FAP BFI 323 (7), Multnomah Co. Bids Oct. 30. CD 10/20.

† **R. J. Adams**, 341 E. Carlin Ave., Compton, Calif., CA **$58,634.** relocation and addnl. partial utilities, Schedules A and B;
OFCCO Constr. Co., Inc., 2650 Cherry Ave., Long Beach, Calif., CA **$99,692,** Schedules "C", Alt. Item 2, ENG-04-353-54-20, Norton Air Force Base, SAN BERNARDINO, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., Bids Oct. 30, awarded Nov. 2. CD 10/16.

▲ **The Lowrie Paving Co.**, 1755 Evans Ave., San Francisco, Calif. and **Lord & Bishop**, P. O. Box 812, Sacramento, Calif., CA **$1,290,695,** aprons, roads, etc. and related work, Constr. 151, San Francisco Airport, SAN FRANCISCO, CALIF. P. Utilities Comn., City Hall, San Francisco, Calif. Bids Nov. 2.

BUILDINGS

LOW BIDS AND CONTRACTS

Crown Constr. Co., 1231 S. LaBrea Ave., Los Angeles, Calif., CA **$815,289,** est. $800,000. 71,424 sq. ft. East Junior HIGH SCHOOL, DOWNEY, CALIF. Downey Union High School Dist., 8521 E. Firestone Blvd., Downey, Calif. Bids Oct. 27. CD 11/5, under LB.

▲ **Lakewood Estates**, 11901 Saltair Terrace, Los Angeles, Calif., Owner Builds. **$1,038,400.** 118 stucco DWELLINGS, Eberle, Hardwick and Iroquois Sts., LAKEWOOD, CALIF.

Trewhitt, Shields & Fisher, 929 Parallel St., Fresno, Calif., CA, **$963,850,** Napa Junior High SCHOOL, NAPA, CALIF. Napa Union High School Dist., Napa, Calif. Bids Oct. 21, awarded Oct. 27. CD 10/28, under LB.

C. M. & K. C. Urton, 725 Cacique St., Santa Barbara, Calif., LB **$447,220.** Adams Elementary SCHOOL, SANTA BARBARA, CALIF. Santa Barbara School Dist., 1235 Chapala St., Santa Barbara, Calif., Chester L. Carjola, 129 De LaGuerra Studios, Santa Barbara, Calif., archts. Bids Nov. 3.

Hilp & Rhodes, 16 and Kansas Sts., San Francisco, Calif., CA, **$510,000,** FACTORY and WAREHOUSE, SUNNYVALE, CALIF. Personal Products Corp., Mill Town, N. J. Ward & Bolles, 215 Leidesdorff St., San Francisco, archts. Awarded Oct. 28.

▲ **Hilp & Rhodes**, 16 and Kansas Sts., San Francisco, Calif., CA, **$3,500,000,** SHOPPING CENTER and F. W. WOOLWORTHS STORE, In Sunnyvale Plaza Shopping Center, SUNNYVALE, CALIF. E. W. Randle & Wm. S. Romano, 222 Montgomery St., San Francisco, Calif. Ward & Bolles, 215 Leidesdorff St., San Francisco, archts. Awarded Oct. 28. CD 5/13/52.

CANADA

SOON LETS CONTRACT—BUILDINGS

Ont., Toronto—SCHOOL—United Church of Canada, 299 Queen St. W., 4 story, bsmnt., 63x154 ft. church training school, on Victoria College Campus. $600,000. A. H. Eadie, 220 Bloor St. W., archt. CD 10/30.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Dunfries Constr. Ltd., P.O. Box 246, Galt, Ont., CA, **$226,603,** sewers in Summerville Ave. and Ottawa St. and other streets;

Robinson Contg. Co. Ltd., 14 Burlington St., Hamilton, Ont., CA, **$86,147,** sewers in Nancy, Green Mountain Road and other streets, HAMILTON, ONT. Municipality, City Hall, Hamilton, Ont. CD 1/6.

Spion Constr. Co. Ltd., 10170 Blvd. St. Lawrence, Montreal, Que., CA, **$288,500,** feeder mains, Allan St., Liege St., Dudemame St. and Prieur work, MONTREAL, QUE. Municipality, City Hall, Montreal, Que. CD 9/31/44.

Canit Construction Ltd., 4851 Cote St. Luc Road, Montreal, Que., CA, **$716,184,** section of Curotte-Papineau Tributary Sewer, MONTREAL, QUE. Municipality, City Hall, Montreal, Que. CD 6/8/51.

Municipality, Quebec City, Que. Day Labor. **$607,000.** sewer services for housing development in Limoilou Ward, incl. mains, QUEBEC CITY, QUE. CD 7/7.

Municipality, Quebec City, Que. Day Labor. **$400,000.** sidewalks, road works for housing development in Limoilou Ward, QUEBEC CITY, QUE. CD 7/7.

Municipality, Quebec City, Que. Day Labor. **$300,000.** water services for housing development in Limoilou Ward, QUEBEC CITY, QUE. CD 7/7.

Continued on page 118)

Wood County Hospital, Bowling Green, Ohio.
Strong, Strong & Strong,
Lima, Ohio, Architects.
Steinle-Wolfe, Fremont, Ohio, Contractors

Wood County Hospital...

where Truscon "O-T" Steel Joists Make Floors Light and Fire-Resistant

Light? Yes. The light weight of Truscon "O-T" Steel Joist construction lessens time and labor required for erection. It saves materials in supporting framework and foundations.

Strong, too. Wide, specially-formed top and bottom chord members impart stiffness, and keep joists true to line. Continuous steel web member is electrically welded to the chords.

Fire-resistant? Yes. Tests prove that ¾-inch of cement or gypsum ceiling plaster on metal lath protects Truscon "O-T" Open Truss Steel Joist construction against high temperatures. In fact, the majority of insurance rating bureaus recognize the merits of this construction and give it a first-class fireproof classification.

Investigate this lower-cost-per-square-foot construction that assures adequate strength and safety. See Sweet's for complete specifications on Truscon "O-T" Steel Joists. Write us for literature describing the complete line of Truscon Steel Building Products.

Truscon "O-T" Steel Joist construction for floors and roof. Underslung design of the bearing means maximum headroom under supporting girders. Open web allows passage of pipes and conduit in any direction.

TRUSCON STEEL DIVISION
REPUBLIC STEEL CORPORATION
1064 ALBERT STREET, YOUNGSTOWN 1, OHIO

TRUSCON® a name you can **build** on

DIFFICULT FOUNDATION WORK

- FOUNDATIONS
- CAISSONS
- UNDERPINNING
- SHEETING & BRACING
- PILING & SHEETING
- SHORING
- COFFERDAMS
- MOVING STRUCTURES
- SPECIAL SERVICES

Write for revised catalog.

UNDERPINNING

The Pretest Underpinning system devised and developed by Spencer, White & Prentis, Inc., represents the highest development of modern underpinning skill. This patented system reduces settlement to the absolute minimum and is based upon sound established engineering principles.

For pit underpinning in simplest form or special and complicated underpinning jobs, Spencer, White & Prentis engineers will gladly assist you with their highly specialized skill.

SPENCER, WHITE & PRENTIS, INC.

10 East 40th St., New York 16
Hammond Bldg., Detroit 26, Mich. • Tower Bldg., Washington 5, D.C.

In Canada

Spencer, White & Prentis of Canada, Ltd.

700 Bay St. Toronto, Ontario
209 Park Bldg. Windsor, Ontario
2052 St. Catherine's St., W. Montreal, Quebec

Diamond Core

Drilling

CORE BORINGS for Foundations, Dams, Bridges and all Heavy Structures GROUT HOLES

Tinney Drilling Co.
Grafton, W. Va.

QUALITY INSTRUMENTS
FINEST JAPANESE OPTICS
Guaranteed Accuracy
Standard American Specifications

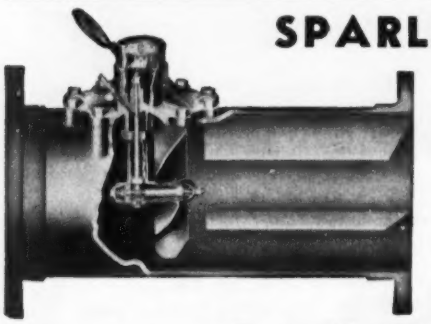
Engineer's Transit—26X
5¾" Horizontal circle
Coated Lenses

$375.00

complete with collapsible tripod and carrying case

Write for Descriptive Literature
Inquire about other Engineering Instruments

UNION MERCANTILE CO.
465 California Street San Francisco, Calif.



SPARLING METERS *for all* MAIN-LINES

The great thing about installing Sparling Meters on main lines is the guaranteed accuracy within 2 per cent, but their simplicity is important, too—so easy to install, to read and to maintain.

Bulletin 313 comes at your request

Flanged Tube Meters 2" to 36"

SPARLING METER COMPANY
INCORPORATED
LOS ANGELES — NEW YORK — CINCINNATI — BOSTON
SEATTLE — ATLANTA — DALLAS — KANSAS CITY, MO.

(Continued from page 116)

BUILDINGS

LOW BIDS AND CONTRACTS

Alberta Ytong Mfg. Co. Ltd., Calgary, Alta., Own Forces, Separate Contracts, $500,000 stone mfg. PLANT, 2A St. and 53 Ave., CALGARY, ALTA. CD 11/5.

Poole Constr. Co. Ltd., 2402 2A St. S.E., Calgary, Alta. CA Est. $500,000. 49,000 sq. ft. parts PLANT, RED DEER, ALTA. Chrysler Corp. of Canada Ltd., 2450 Chrysler Centre, Windsor, Ont. Wm. Souter & Assoc., 36 James St., Hamilton, Ont., and Rule, Wynn & Rule, 513 Eighth Ave. W., Calgary, Alta., archts. Awarded Nov. 2.

Oland Constr. Ltd., 1307 S. Third Ave., Lethbridge, Alta. CA Est. $320,000. 2 story, concrete, steel, brick HOSPITAL addn., TABER, ALTA. Municipality, Taber, Alta. CD 6/8.

▲ **British Columbia Bridge & Dredging Co., Ltd.,** 544 Howe St., Vancouver, B. C. CA Total est. $20,000,000. newsprint MILL, 300-ton daily capacity, CAMPBELL RIVER, B. C. Crown-Zellerbach Corp., 6363 Airport Way, Seattle, Wash. N. S. A. Howard A. Simons, c/o owner, engr. CD 7/24.

Sterling Constr. Co. Ltd., 2494 Sandwich St. E., Windsor, Ont. CA $790,742. 1 story, 250x500 ft., block walls, CENTRAL ORDNANCE DEPOT for Canadian Army, concrete fdn., LONDON, ONT. Defence Constr. Ltd., 40 Eglinton Ave. E., Toronto, Ont. Bids Oct. 20, awarded Nov. 3. CD 10/6.

Camston Ltd., 2916 Bloor St. W., Toronto, Ont. CA Est. $200,000. 1 story, 100x250 ft., steel, brick truck maintenance GARAGE, TORONTO, ONT. British-American Oil Co. Ltd., 800 Bay St., Toronto, Ont. Crang & Boake, 79 Huntley St., Toronto, Ont., archts. Alex Tobias, 269 College St., Toronto, Ont., engr. Awarded Nov. 4.

▲ **Eastern Constr. Co., Ltd.,** 2573 Airport Rd., Windsor, Ont. CA Est. $4,000,000. part 2 story PLANT exten. and OFFICES, WINDSOR, ONT. Chrysler Corp. of Canada Ltd., 245 Chrysler Centre, Windsor, Ont. CD 10/20.

▲ **Logemont de Hull, Inc.,** 370 Maisoneuve St., Hull, Que., Owner Builds, $2,000,000, 200 concrete, brick DWELLINGS, HULL, QUE.

E. Lammarre, 200 St. John St., Jonquiere, Que., CA, $250,000, GARAGE, JONQUIERE, QUE. Garage Munger Ltd., 370 St. Dominique St., Jonquiere, Que. Sylivo Brassard, 39 Avenue Moncton, Quebec City, Que., archt.

Dpt. P. Health, Parliament Bldg., Regina, Sask. Day Labor and Separate Contracts. $950,000. Training SCHOOL, MOOSE JAW, SASK. CD 10/26.

U. S. POSSESSIONS

BIDS ASKED—BUILDINGS

▲† **Virgin Islands**—SCHOOLS—B.A. 1/20—Office of Territories, Dpt. Interior, in Office of Dist. Engr., Insular Div., Thomas G. Mooney, Charlotte Amalie, St. Thomas, U.S. Virgin Islands, Sect. A, St. Croix, Proj. 53-504, Christiansted Consolidated School, (elementary part) new constr., Plans deposit $55; LaVallee Elementary School addns., alterations, Plans deposit $30; Sect. B, St. Thomas, Proj. 53-105, alterations and addns. to James Madison, Robert Herrick and James Monroe Elementary Schools, Plans deposit $40; Sect. C, St. John, Proj. 53-105, Cruz Bay Consolidated School, Plans deposit $40; East End Elementary School addn., Plans deposit $30; Horace Mann Elementary School, Plans deposit $30; Benjamin Franklin Elementary School, Plans deposit $30; adv. ENR 12/10. CD 10/27.

Proposed Projects——

WATER SUPPLY

Mo., Webster Groves (St. Louis 19, P. O.)—City, voted $400,000 bonds imprv. municipal water sys. CD 8/28.

▲ **Va., Arlington**—Arlington Co., Court House, voted $1,327,000 bonds Nov. 3, water supply imprvs.

SEWERS, WASTE DISPOSAL

▲ **Ill., Chicago**—City, City Hall, voted $10,000,000 bonds, refuse incinerators, refuse loading stations equipment and acquiring sites. CD 10/28.

▲ **Ky., Louisville**—Metropolitan Sewer Dist., W. Jefferson St., voted $6,000,000 bonds, sewage disposal plant. CD 9/29.

Mich., Battle Creek—Battle Creek Twp., Township Bd., Ray Cameron, treas., Battle Creek, sewage disposal plant and treatment facilities, sanitary sewers. $750,000. CD 11/30/44.

▲ **N. Y., Freeport**—Village Bd., Freeport, sewage disposal plant addn., Albany Ave. $1,000,000. Herbert Wood & Walter Pope, 117 W. Sunrise Hy., consult. engrs. CD 5/21/52.

▲ **O., Akron**—City, City Hall, voted $10,000,000 bonds Nov. 3,

SANITARY SEWERS

Archwood Ave., Baltimore Ave. to Baltimore & Ohio R.R.
Bettes School District trunk to Breiding Dr., Grand Park Ave., Betona Ave., et al.
Boxwood, Clairmont and Woodsdale Ave., sanitary outlet for Beverly Park allotment.
Camp Brook sanitary trunk sewer and exten., Home Ave. trunk to Brittain Rd. and extens. to Eastwood and Morningview Ave.
Chandler Ave. sanitary trunk from Mud Run in Chandler and Battles Ave. to 13th St.

Dartmore Ave. outlet for Sycamore and Hemlock Sts.
Garman Rd. exten. and right of way north of A. C. & Y. R.R. east of Hawkins Ave.
High Grove Park district sanitary outlet from Little Cuyahoga River to Shelburn Ave.
Keller St. and Ocean Ave., Success St. outlet (combined)
Merridge Rd. sanitary outlet for vicinity of Merriam Rd., N. Portage Path and A. C. & Y. R.R.
Mud Run trunk sewer, Mud Run Valley, Leeser to Wooster Ae., Himelright Blvd., Ny St., Juneau Ave., Bellevue Ave., Frederick Blvd. and Thurston Ave. to Hawkins Ave.
Newton St., Darrow Rd. trunk to Cooledge Ave.
Nordica Ave. branch off Mud Run Trunk sewer from Mud Run to East Ave. and Silvercrest.
Roosevelt Dr. sanitary trunk sewer from Little Cuyahoga River to Eastwood Ave.
St. Michaels Ave. pump house, replace old bldg. and equip.
Sorin and Vane Ave. outlet; Sorin to Home Aves. trunk;
Triplett Blvd. sanitary sewer, Massilon to Woodstock Rds.
Waterloo Rd. at Brown St. sanitary outlet to Southern outfall sewer at Brewster Creek, Total cost $1,550,000.

STORM SEWERS

Archwood Ave. and right-of-way, Seiberling St. to Kelly and Austin and Landon Aves., Archwood to Triplett.
Brown St. storm sewers; outlet to Brewster Creek from Brown St., Redwood Ave., Coventry St., Waterloo Rd., et al.
Bye St. storm outlet, exten. in Bye St., Frederick Blvd., Good Park Blvd. and right-of-way to Pigeon Creek.
Chandler Ave. and right of way from Mud Run to existing storm sewer in Kelogg ditch, east of 21 St.
Clairmont Ave., Woodsdale Ave., storm outlet for Firestone Park No. 3, Beverly Park and Waterloo Rd.
College St., E. Market St. to Cottage Pl., Mill St., College of Union St.
Ellett district storm sewers in Shrop ditch drainage area, outlet for High Grove Blvd., Pitt Rd., Albrecht Ave., Ripley Ave. and Canton Rd. south of Triplett Blvd.
Firestone relief sewer, Sweitzer Creek district storm outlet.
Garman Rd. storm sewer and outlet to Metropolitan Park.
Godhue, Waldorf and Pershing, W. Market St. to Ganyard Rd.
Hawkins Ave. and Westgate Circle, storm sewer from Alden Ave. via Westgate Circle to Randel Ave. and Shatto Ave.
High Grove Blvd. district storm outlet Little Cuyahoga River to Shelburn Ave.
Inman St. storm trunk sewer, Eva Ave. to Brewster Creek.
Jenkins Blvd. storm sewer from S. Arlington Ave. to Lindsay Ave. and Clement St.
Little St. storm relief sewer, St. Michaels Ave. to Winston Ave.
Morse Rd. storm sewer, Mud Run to East Way.
Ninth St. S.W., storm relief sewer to Wilbeth Rd. and Erie R.R.
Pfeiffer Ave. storm sewer in right of way, Bellfield, Pfeiffer and Hawk Ave. to Canton Rd.
Waterloo Rd., Mud Run to Cordelia Ave., Cordelia Ave., Waterloo Rd. to Sevilla Ave.
West South St., S. Main St. to May Ct., Coburn St., South St. to 322 ft. north of Voris St., Total est. $3,550,000. CD 9/9.
▲ O., Shaker Heights—City, City Hall, voted $1,000,000 bonds Nov. 3, sewers, CD 7/2.
▲ Va., Arlington—Arlington Co., Court House, voted $1,000,000 bonds Nov. 3, sewers.

BRIDGES

▲ Ill., Chicago—City, City Hall, voted $16,000,000 bonds, East 95 Street Bridge, $4,000,000; West Harrison Street Bridge, $3,550,000; Underpass, S. Ashland at 40 St., $1,450,000; viaducts, $1,000,000. CD 10/28.
▲ La., Pearl River—Louisville & Nashville R. R. Co., L. L. Adams, ch. engr., 908 West Broadway, Louisville 1, Ky., steel, concrete bridge at Pearl River, at Mississippi-Louisiana Line, $1,250,000.
O., Columbus—City, City Hall, 500 ft. concrete deck type bridge to span Hoover Dam Reservoir. $600,000. CD 6/27/51, under Water Supply.
▲ O., Dayton—City, Herbert W. Starick, mgr., City Hall. five-lane, Main St. Bridge. $1,800,000. John Hale, city engr. CD 11/28/45.
▲ O., Warren—City, Hall, defeated $1,750,000 bonds Nov. 3, grade crossings. CD 8/28/47.

STREETS AND ROADS

Mo., St. Louis—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 and Market Sts., Zone 3, widn., Imprv. 0.8 mi. North Broadway, dock to Angelica St. incl. 62 ft. roadway and two 9 ft. sidewalks, $600,000. CD 8/10/44.
▲ NORTH CAROLINA—State Hy. & P. Wks. Comn., Raleigh,
Burke Co.—relocate U.S. 70 through city of Morganton, $450,000.
Rowan Co.—U.S. Hy. 29 By-Pass around city of Salisbury $500,000.
Vance Co.—by-pass hy. on U. S. 1 around City of Henderson. $500,000.
Wake and Durham Counties—Imprv. U.S. 70 between Raleigh and Durham, $200,000. CD 7/23/52.
▲ OHIO—State Hy. Dpt., Columbus,
Clark Co.—32 mi. four-lane limited access freeway, U. S. Rte. 40, west of Springfield, with cloverleaf approaches at important junctions, relocation of

Two major forward steps were taken last spring in Pennsylvania's Clean Streams Program. These new Dorr-equipped treatment plants at Bethlehem and Easton went into operation to play an important part in abating pollution of the Lehigh and Delaware Rivers. Biofiltration and Multdigestion were selected as the most efficient combination at both plants. If you don't already have Bulletin No. 6041, Dorr Equipment and Methods for Modern Sewage Treatment, write for a free copy today. The Dorr Company, Stamford, Conn.

Bethlehem, Pa.
Design capacity is 12.5 MGD using the single-stage Biofiltration flowsheet. Dorr equipment includes two 18' sq. Detritors, four 135' dia. S-7 Clarifiers, four 120' Distributors and two 65' dia. Multdigestion Systems.
Consulting Engineers: Morris Knowles, Inc., Pittsburgh, Pa.

Easton, Pa.
Design capacity is 5.0 MGD and either single or two-stage Biofiltration can be used. Dorr equipment includes one 18' sq. Detritor, four 100' dia. S-7 Clarifiers, two 160' Distributors and a 65' dia. Multdigestion System.
Co-Consultants: Glace & Glace, Harrisburg, Pa. and Whitman, Requardt & Associates, Baltimore, Md.

Detritor and Multdigestion are trade-marks of the Dorr Company-Reg. U. S. Pat. Off.

Better tools TODAY to meet tomorrow's demand

DORR

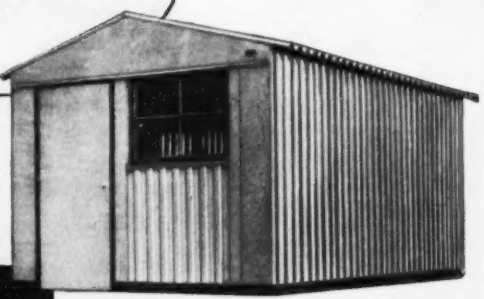
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT

THE DORR COMPANY • ENGINEERS • STAMFORD, CONN.
Offices, Associated Companies or Representatives in principal cities of the world.

"Gunite" ..... the sand-cement product of the "CEMENT GUN," for Concrete and Masonry Repairs, Pre-Stressed Tanks, Steel Encasement and for lining Reservoirs, Sewers and Tunnels.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA. U.S.A.
MANUFACTURERS OF THE 'CEMENT GUN'

EVERY CONSTRUCTION JOB CAN USE ONE



USF Handy-Hut

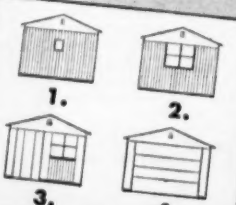
FRONT

✓ PORTABLE
✓ EXPANDABLE
✓ FLEXIBLE IN DESIGN

This all steel "handy-hut" fills a thousand needs of contractors. Its formed steel frame is quickly bolted together and all siding and roofing panels attached by the famous USF "Clip and Wedge" method that requires no holes in sheets.

You get the weather-tight, vermin-proof, and fire proof advantages of a permanent building . . . yet this one is easily dismantled and 100% salvable. Sizes range from 10′ x 12′ to 10′ x 40′ with full 7′ head clearance. Your choice of four different end panels, windows in sides, and interior partitions, gives full flexibility of design.

Choose from 4 types of end construction



Reg. U. S. Pat. Off.
USF
UNITED STEEL FABRICATORS, INC.
WOOSTER, OHIO
PRODUCTS Hollow Metal Doors • Prefabricated Metal Buildings • Window Wells
Highway Guard Rail • Bridge Flooring • Corrugated Metal Pipe

GUNITE
Since 1913
CONCRETE
SAND AND CEMENT
Placed by Air

38 YEARS OF SERVICE TO AMERICAN GOVERNMENT and INDUSTRY

- Linings
- Encasing
- Fire Proofing
- Insulating
- Repairing
- New Construction
- Renovating
- Redevelopment

Send for specifications and bulletins—no obligation.
See our catalog in Sweets

GUNITE CONCRETE & CONST. CO.
ENGINEERS — CONTRACTORS
1301 WOODSWETHER RD. KANSAS CITY, MO.
CHICAGO — ST. LOUIS — MINNEAPOLIS
DENVER — HOUSTON — NEW ORLEANS

WELDING CONNECTORS

Saxe Welding Connection Units position and secure structural parts to be welded

Clip K3A permits an adjustable connection.

These widely used units eliminate all hole punching and, with welding, produce the most economical, safe and quickly erected structural frame.

Write for 1951 edition, Structural Welding Practice Manual.

J. H. WILLIAMS & CO.
Buffalo 7, New York
Air Reduction Canada, Ltd. Montreal 2, Canada

existing Rte. 40, 2 or 3-mi. south of present by. $16,000,000.

▲ **OHIO**—State Hy. Dpt., Columbus, **Franklin Co.**—Interchange at Spring, Sandusky Sts., U. S. Rte. 33, Columbus, as part of innerbelt expressway. $4,500,000. Alden E. Stilson & Assocs. 209 S. High St., Columbus, engrs. CD 5/24/51.

▲ **O., Youngstown**—City, City Hall, voted $4,100,000 bonds Nov. 3, street improvs. to include:
Canal St. from Boardman St. to South Ave., $100,000.
Central Square.
Center St. from Wilson Ave. to Center St. Bridge and Wilson Ave. from Dry Run to city limits, $60,000 for both.
Division St. Bridge, Stage 2 at easterly end.
East Rayen Ave. from Walnut St. to Oak St. Bridge, $500,000.
Elm St., from Madison to Park Aves., $100,000.
Gibson St. Bridge from Williamson to Dorothy.
Glenwood Ave. from Midlothian Blvd. to Ferndale Ave., $50,000.
Mahoning Ave. from Oak Hill Ave. to Hogue St., $40,000.
Market St. from Southern Blvd. to city limits, $150,000.
Market St. from Warren to Glenaven Aves. $150,000.
McGuffey Rd. from Wick to Madison Aves., $80,000.
Oak St. from Monroe St. to Early Rd., $850,000.
Poland Ave. from Loveland Ave. to Powers Way, $90,000.
Salt Spring Rd. from Leo Ave. to Meridian Rd., $180,000.
South Ave. from King St. to Cameron Ave., $900,000.
Tod Ave. from Irving Ave. to Salt Spring Rd., $60,000.
West Federal St. from Sarah St. to city limits, $150,000.
West Federal St., from Robinwood Ave. to Worthington St., $1,200,000.
Wick Ave. from McGuffey Rd. to Rayen Ave., $110,000.
CD 10/9.

† **Texas**—U. S. Eng., 100 W. Vickery St., Fort Worth, relocation of 6.63 mi. Farm-to-Market Road No. 423, $425,000; Hy 24-T Crossing Little Elm Creek, $100,000-$1,000,000, Lewisville area, Garza-Little Elm Dam.

▲ **Va., Arlington**—Arlington Co., Court House, voted $1,720,000 bonds Nov. 3, street imprvs.

EARTHWORK, WATERWAYS

▲ **Calif., El Centro**—Imperial Irrigation District, 125 S. 5 St., voted $10,000,000 bonds, 33,000 kw. hydroelectric plant at Pilot Knob. CD 10/20.

† **Texas**—U. S. Eng., 100 W. Vickery St., Fort Worth, relocating 23 mi. Denton County Rds., acct. Grapevine Reservoir, Denton Co. $100,000-$1,000,000.

Tex., Dallas—A. Harris & Co., Main and Akard Sts., plans by Smith & Mills, Mercantile Bank Bldg., Dallas, and Walter Becket & Assocs., 5657 Wilshire Blvd., Los Angeles, Calif., underground tunnel truck service, in areas Giest, Beckley and Zang Sts. $500,000.

Tex., Irving—Mayflower Investment Co., Carr P. Collins, pres., 912 Commerce St., Dallas, area tract general grading, excavating, leveling, open drainage. $150,000.

AIRPORTS

▲ **Del., Dover**—AIR FORCE BASE—U. S. Eng., 121 N. Broad St., Phila., Pa., plans by Whiteside, Foster Damon & Doane, Inc., du Pont Bldg., Wilmington, Dover Air Force Base expansion, $19,687,000. CD 9/13/51.

Alta., Calgary—AIRPORT TERMINAL—City, City Hall, ratepayers approved new terminal bldg. at municipal airport, $850,000. K. L. Bond, 715 4A St. N. W., archts. CD 9/16.

LATIN AMERICA

▲ **Mexico**—U. S. A.-Mexico, Foot & Mouth Disease Comn., Laredo, Tex. and Nuevo Laredo, Mexico, plans meat packing plants for products of slaughtering of hoof and mouth diseased cattle, at Matamoros, $1,000,000; Victoria area, $750,000, both in State of Vera Cruz. CD 7/17/47.

PUBLIC BUILDINGS

▲ **Calif., Concord**—SCHOOLS—Mount Diablo Unified School District, Concord, voted $2,100,000 bonds schools. CD 9/10.

▲ **Calif., Los Angeles**—SCHOOL—Los Angeles Bd. Educ., 1425 S. San Pedro St., plans by Wm. H. Harrison, 816 W. 5 St., Watts Junior High School, 104 and Compton Sts., $2,000,000. CD 6/13/52.

Calif., Los Angeles—HOSPITAL—City, City Hall, plans by H. C. Chambers & Lester Hibbard, 124 W. 4 St. receiving hospital, 6 and Loma Dr. $800,000.

Calif., Monrovia—SCHOOLS—Monrovia City School District, 122 Linwood Ave., voted $500,000 bonds imprvts. at Mayflower, Clifton and Plymouth Schools, CD 7/27.

▲ **Calif., San Francisco**—CONVENTION HALL—City and San Francisco Co., City Hall, defeated $3,275,000 bonds sub-surface convention hall in civic center.

▲ **Calif., San Francisco Co**—LIBRARY—City and San Francisco Co., City Hall, defeated $1,894,950 bonds, library.

▲ **Colo., Englewood**—SCHOOLS—School District No. 1, 2650 South Broadway, 3 elementary schools, 1 Junior High School, 4 elementary schools addns., high school addn., and Junior High School imprvs., $2,500,000. CD 12/19/51.

▲ **Conn., Hamden**—SCHOOL—Town, Paul Flemming, chn. Bd. Educ., 2040 Dixwell Ave., plans by Warren H. Ashley, 967 Farmington Ave., West Hartford Junior High School, Gilbert Ave. $2,000,000.

Del., Wilmington—SCHOOL—Henry C. Conrad High School Bldg. Comn., plans by Stanhope & Manning,

(Continued on page 123)

"Gradall worked more hours than any other machine on the job!"

Mr. G. F. Howard
G. F. Howard Construction Company
Canfield, Ohio

HERE'S what Mr. Howard told us, "Gradall gathers all the loose ends together on my construction jobs. On my Route 46 contract near Columbiana, Ohio, the Gradall worked more hours than any other machine on the job. Gradall has proved itself to be a real money-maker. Why I didn't buy one sooner, I'll never know!"

This is typical of the experiences of other Gradall owners from coast to coast. They report their Gradalls handling more and more jobs, putting in 1800 to 2000 on-the-job hours every year, doing short-run jobs profitably, eliminating hand labor.

The multi-purpose Gradall's fast attachment changes, mobility, and ¼" accuracy enable owners to bid on more jobs—to make bigger profits.

But prove it for yourself. Your nearest Gradall Distributor will be glad to give you a field demonstration on your own work—to show you how Gradall can make more money for you!

Now one machine does all these jobs!

- Trenching and backfilling
- Excavating
- Placing tanks, culverts, curbs, etc.
- Sloping and grading
- Ditch digging and cleaning
- Ripping and loading old pavement
- Hand labor finishing and clean-up

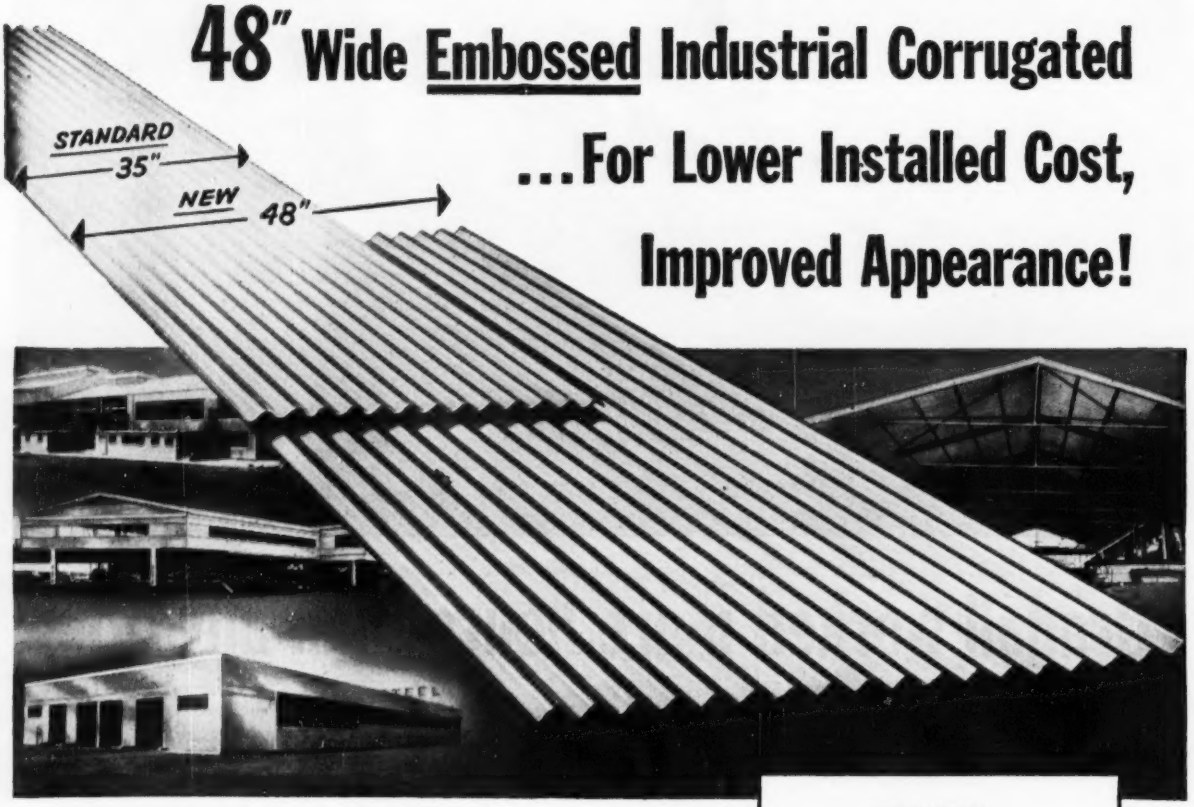
Gradall Distributors in Over 75 Principal Cities in the United States and Canada

Gradall
DIVISION OF WARNER & SWASEY Cleveland

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY

BIG NEWS IN ALUMINUM!

48" Wide Embossed Industrial Corrugated ...For Lower Installed Cost, Improved Appearance!



All the advantages that have made Reynolds Aluminum Industrial Corrugated a sweeping success throughout industry... rust-proof permanence, lowest maintenance, high insulation... now at even lower installed cost and with improved appearance! With these new 48" sheets, side laps take 30% less metal, 30% fewer fasteners... and there are 30% fewer sheets to handle. With the new stipple-embossed finish, the wider-spaced laps tend to disappear... making a handsome, uniform, textured effect. Call on Reynolds for literature, technical and application details.

Offices in principal cities. Check your classified phone book for our listing under "Building Materials." Or write Reynolds Metals Company, Building Products Division, 2009 South Ninth St., Louisville I, Kentucky.

DESCRIPTION:

METAL THICKNESS: 0.032 inch (22 U.S. Std. Ga.)

FINISH: Embossed.

LENGTHS: 5', 5' 6", 6', 6' 6", 7', 7' 6", 8', 8' 6", 9', 9' 6", 10', 10' 6", 11', 11' 6", 12'. (Special lengths cut to order subject to inquiry.)

WIDTH: Over all width 48⅛", nominal coverage 45⅓", 1½ corrugations side lap.

CORRUGATION: Pitch 2.667" center to center, depth ⅞", 18 crowns, 18 valleys, one edge up, opposite edge down.

WEIGHT: 56 pounds per 100 square feet of formed sheet.

Standard .032" mill finish Industrial Corrugated also available—35" width, same lengths as above.

REYNOLDS Lifetime ALUMINUM INDUSTRIAL CORRUGATED

SEE "MISTER PEEPERS," starring Wally Cox, Sundays, NBC-TV Network.

(Continued from page 120)

902 Orange St., Henry C. Conrad High School addn. $500,000.

▲ **Fla., Gainesville**—SCHOOLS—Alachua Co. Bd. P. Instruction, Gainesville, voted $2,950,000 bonds school imprvs. CD 8/25.

▲ **Ill., Chicago**—CENTRAL HEATING PLANT—City, City Hall, voted $2,000,000 bonds, central heating plant and system near House of Correction. CD 10/28.

▲ **Ill., Winnetka**—HIGH SCHOOL, etc.—School District No. 203, 385 Winnetka Ave., plans by Armstrong, Furst & Tilton, 1515 Sherman Ave., Evanston, bond election Dec. 12, high school and auditorium, $5,800,000.

Ind., Franklin—HIGH SCHOOL, etc.—Johnson County School System, plans by Ralph E. Legeman, 10 Chestnut St., Evansville, high school and gymnasium, Center Dr. $550,000. CD 1/23.

Ind., Gary—SCHOOL—School City of Gary, 524 Garfield St., plans by R. J. Kastendieck, 673 Broadway, Lincoln Elementary School addn., 17 and Polk Sts. $650,000.

Ind., Monroe—SCHOOL—Adams Central School, Monroe, plans by Albert Heeter, 1001 Gettle Bldg., Fort Wayne, consolidated school, $700,000. CD 4/2, under Ind., Berne.

Kan., Marysville—HOSPITAL—Marshall Co., Marysville, defeated $500,000 bonds Oct. 20, county veterans hospital. CD 10/13.

Me., Augusta—BUILDING—State, Dpt. Institutional Services, State House, plans by Banker & Savage, 283 Water St., 3 story, bsmt., 50,000 sq. ft. brick, steel, concrete building for aged women, $900,000. CD 1/30.

Mass., East Cambridge—COURT HOUSE—Comrs. Middlesex Co., 90 3 St., plans by James H. Ritchie & Assoc., 135 Clarendon St., Boston, court house addn. $500,000.

▲ **Mass., Waltham**—SCHOOLS—City, John W. McDevitt, supt. Schools, 55 School St., plans by Thomas Worcester, Inc., 85 State St., Boston, Junior High School, Cabot Reservation, Lexington St., $2,000,000; plans by Chester F. Wright, 681 Main St., Waltham, North West Elementary School, Casey Property, $500,000.

▲ **Mich., Flint**—MUNICIPAL—City, City Hall, voted $4,997,500 bonds, municipal bldg. incl. land acquisition. CD 9/23.

▲ **Mich., Ionia**—PRISON—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, brick, steel, concrete state prison, $7,000,000, Project has been approved for structure half as large as originally recommended. CD 3/10.

Minn., Montevideo—COURT HOUSE—Chippewa Co., N. G. Miller, adv., plans by Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, court house. $500,000. CD 9/1/50.

▲ **Mo., Independence**—SCHOOL—Bd. Educ., c/o Dr. L. G. Keith, supt., bond election Nov. 24, elementary school, southeast section, new secondary school (2nd unit) on old Ott grounds; new elementary Ott school, Alton Elementary School addn. $1,680,000.

Mo., Independence—COURT HOUSE—Jackson Co., c/o Ray Niles, genl. chn. Emergency Bd. Comn., Independence, $750,000 bond election Dec. 15, courthouse, Alonzo Gentry, 4 W. 13 St., Kansas City, Mo., archt. Harvey A. Jones, staff engr. CD 10/21.

Mo., Kansas City—COURT HOUSE—Jackson Co., c/o Ray Niles, genl. chn. Emergency Bd. Comn., Independence, $960,000 bond election Dec. 15, court house, Alonzo Gentry, 4 W. 13 St., Kansas City, Mo., archt. Harvey A. Jones, staff engr. CD 10/19.

Mo., Macon—LIGHT PLANT—City, municipal light plant expansion, $695,000.

▲ **Mo., Maplewood—Richmond Heights** (St. Louis 17 P. O.) — SCHOOLS — Maplewood-Richmond Heights School Dist., Supt. Schools, 7539 Manchester Rd., Maplewood, Zone 17, plans by M. B. Ittner, Inc., engr.-archt., 408 B. Educ. Bldg., 911 Locust St., St. Louis, Zone 1, elementary school replacing Valley School, 7566 Manchester Rd., Maplewood, $500,000; Richmond Heights School, 7330 Glades Ave., Richmond Heights, $350,000; Lincoln School addn. 7917 Thomas Place, Richmond Heights, $300,000; imprv. to Junior High School, Sutton and West Richmond Heights Schools, $650,000. CD 10/30.

Mo., Mexico—SCHOOL—Bd. Educ., Mexico, voted bonds, school buildings, $982,000. CD 8/28.

▲ **Mont., Butte**—HIGH SCHOOL—School Dist. No. 1, Admin. Bldg., plans by J. G. Link & Co., 111 N. Montana St., 2 story Junior High School. $2,450,000. CD 6/18.

Neb., Omaha—OFFICE, etc.—Omaha Public Power Dist., 17 and Harney Sts., completely remodel 4 story bldg., for use as main offices, show room, 19 and Howard Sts., $600,000. C. W. Minard, asst. gen. mgr. and engr. CD 8/17/51.

▲ **N. J., Clark**—SCHOOL—Union County Regional High School Bd. Educ., Springfield, regional high school on 21-acre tract, $1,800,000.

▲ **N. J., Passaic**—SCHOOL—City Bd. Educ., Supt. Schools, Columbia Ave. and Van Buren St., voted $3,000,000 bonds, Passaic Senior High School, on site now occupied by Passaic City Hall. CD 6/8/50.

▲ **N. Y., Brooklyn**—HOUSING—New York City Housing Auth., 63 Park Row, New York 38, N. Y., plans by Fellheimer, Wagner & Vollmer, 155 E. 42 St., New York, Zone 17, Albany II Houses, three buildings for 400-families on block bounded by Albany Ave., Bergen St., and Troy Ave. $5,175,000. CD 4/3/52.

▲ **O., Berea**—SCHOOL—Bd. Educ., voted $3,500,000 bonds Nov. 3, schools. CD 8/25.

▲ **O., Cincinnati**—HIGH SCHOOL—Bd. Educ., 216 E. 9th St., plans by E. C. Landberg & Assocs., 114 Garfield Pl. Kennedy Heights Junior High School, Lumford Pl. $1,650,000. CD 4/3/52.

▲ **O., Cleveland**—ADMINISTRATION—Cuyahoga Co., Court House, defeated $4,100,000 bonds Nov. 3, county admin. bldg. CD 10/20.

▲ **O., Columbus**—SCHOOLS—Bd. Educ., 270 E. State St., voted $14,000,000 bonds Nov. 3, new schools, school addns., imprvs. CD 9/8.

▲ **O., Mansfield**—SCHOOLS—Bd. Educ., Mansfield, defeated $4,400,000 bonds Nov. 3, school impvt. program. CD 7/21.

▲ **O., Massillon**—SCHOOLS—Bd. Educ., Massillon, defeated $4,125,000 bonds Nov. 3, schools. CD 7/27.

▲ **O., Parma**—SCHOOLS—Bd. Educ., Parma, voted voted $3,500,000 bonds Nov. 3, schools. CD 8/3.

▲ **O., Shaker Heights**—SCHOOLS—School Dist., S. Woodland and Woodbury St., voted $4,100,000 bonds Nov. 3, schools. CD 9/24.

▲ **O., South Euclid**—SCHOOLS—South Euclid-Lyndhurst Bd. Educ., Mayfield and Evanston Rds., voted $1,780,000 bonds Nov. 3, schools. CD 9/25.

▲ **O., Warren**—SCHOOLS—Bd. Educ., Warren, voted $5,500,000 bonds Nov. 3, school expansion. CD 11/12/52.

O., Youngstown—FIRE STATIONS—City, City Hall, voted $730,000 bonds Nov. 3, two fire stations. CD 10/9.

Pa., East Greenville—HIGH SCHOOL—Upper Perkiomen Joint School Bd., East Greenville, high school and gymnasium addns. $500,000.

Pa., Langhorne—SCHOOL—Middletown Twp. School Bd., Langhorne, plans by Haag & D'Entremont, Jenkintown, elementary school. $600,000. CD 10/29.

▲ **Pa., Lima** — HOSPITAL — Comrs. Delaware Co., Media, plans by George M. Ewing, Western Savings Fund Bldg., Phila., hospital addn. $1,000,000.

R. I., Howard—HOSPITAL—State, P. Wks. Dpt., State Office Bldg., Providence, plans by Cull, Robinson & Green, 385 Benefit St., Providence. Adolph Meyer Bldg. addn., State Hospital. $850,000. CD 8/31/43.

▲ **Utah, Provo**—HIGH SCHOOL—Bd. Educ., Provo, plans by Fred L. Markham, 45 N. University St., high school, three wings. $2,000,000.

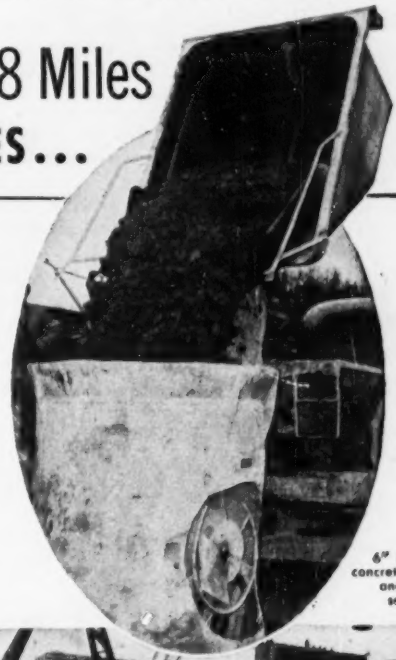
▲ **W. Va., Princeton**—SCHOOLS, etc.—Mercer Co., Princeton, voted $2,760,000 bonds, for schools and school addns.

Wis., Cedarburg—SCHOOL—Bd. Educ., Cedarburg, high school, $600,000.

B. C., Duncan—HOSPITAL—King's Daughters' Hospital Bd. F. Howey, chn., plans by Whittaker & Wagg, 635 Fort St., Victoria, 4 story, rein.-con., 120-bed hos-

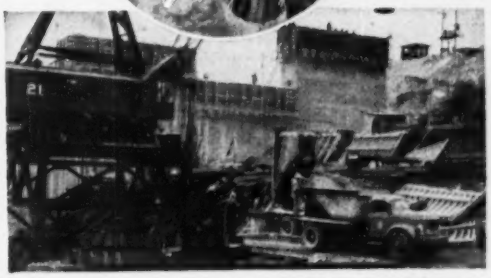
T.V.A. HAULS MASS CONCRETE 8 Miles In DUMPCRETES...

Top quality and uniform concrete is delivered to Ft. Patrick Henry Dam in Tennessee after 8-mile haul in non-agitating units. Of the 75,000 yards of air-entrained concrete, about ⅔ contains 6" aggregate. Ten Dumpcretes haul 4.4 cu. yds. per load—about 600 yds. per 7½ hour shift! TVA now uses 30 high-speed rugged Dumpcretes on this and five other projects. Write today for complete report on this job.



6" aggregate concrete uniform and with no segregation

Plant located 8 miles from pour



Dumpcrete's vertical dumping angle assures fast, clean discharge

MAXON DUMPCRETE

FASTEST FROM PLANT TO POUR

Manufacturing Division, Maxon Construction Co., Inc.
676 Talbott Building, Dayton 2, Ohio

Send the following literature:

☐ Field Report - Ft. Patrick Henry Dam ☐ How the Dumpcrete Hauls 8 Different Materials

Name_____

Firm_____

Street_____

City_____

JACKSON VIBRATORY COMPACTOR

RAPIDLY CONSOLIDATES

PIPE LINE BACKFILL

TO SPECIFIED DENSITY

Result — pipe line is uniformly supported by compacted soil and top of trench stays to finished grade. This manually-guided, self-propelling Jackson Compactor will compact granular soils at optimum moisture to specified density in depths of 8" to 12" at the rate of 2400 sq. ft. per hour. It is available with quickly interchangeable base of 12" to 24" and equally advantageous for blacktop pavement widening and patching — paving drives, walks, etc. Operated from Jackson Power Plant mounted on auto trailer with quick pick-up of Compactor. For rent or sale at your Jackson Distributor. Write for details.

JACKSON VIBRATORS, INC. LUDINGTON MICHIGAN

EFFICIENCY PLUS PROTECTION with KINNEAR Steel Rolling Doors

Repel RIOTERS, TRESPASSERS, FIRE, RAIN, SNOW, etc. . .

Safeguard all doorway entrances against harmful elements. For complete protection against fire specify "AKBAR" fire doors made to rigid specifications and approved by Underwriters' Laboratories, Inc. Fire insurance rates have been reduced up to ⅓ after the installation of "AKBAR" Firedoors. Write today for complete details.

The KINNEAR Manufacturing Company

1820-40 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in Principal Cities

SAVING LIVES in DOORWAYS

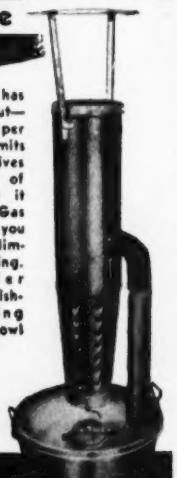
KINNEAR ROLLING DOORS

BEST BUY... PORTABLE HEAT

Costs So Little

The Hy-Lo Salamander has the greatest heat output—up to 140,000 BTU per hour. Low cost permits greater flexibility — gives you the right amount of heat where you want it —the Patented Return Gas Stack principle assures you of clean heat and eliminates frequent cleaning. The only Salamander equipped with extinguishing damper — carrying handles and cover to bowl clamps.

Get complete HY-LO FACTS NOW!



HY-LO OUTSELLS ALL OTHERS

Distributors in all principal cities — write or wire for nearest distributor.

Scheu Products Company

Upland, California Warehouse: Chicago

pital, offices, therapy X-ray and laboratories also 5 operating rooms, $800,000.

▲ Ont., Hamilton—HOME FOR THE AGED—City, J. F. Berry, clk., City Hall, plans by S. Roscoe, c/o owner, 1 story, three wings, 300-bed, brick, stone home for the aged and 3 story, administration section, on Sherman Ave. S. to be known as Macassa Lodge, $1,500,000. C. C. Parker & Assocs. Ltd., 63 John Sts., Hamilton, engrs. CD 12/17.

Ont., Welland—HOME FOR THE AGED—Welland Co. A. J. Babion, clk., 102 Main St., E., 2 story county home for aged addn. $600,000.

▲ Que., Montreal—HIGH SCHOOL—Protestant Bd. School Comn., C. D. Norton, secy., of Point Clair and Beaconsfield, plans by Barrott, Marshall, Montgomery & Merrett, Canada Cement Bldg., 1 and 2 story, concrete, steel, brick, block high school, at Lakeside. $1,500,000.

COMMERCIAL BUILDINGS

▲ Calif., Chula Vista—DWELLINGS—Sam Berger, U. S. Grant Hotel, San Diego, 2,000 frame, stucco dwellings. $16,000,000.

▲ Calif., Fontana—DWELLINGS—Superior Land Co., 1124 S. Beverly Dr., Los Angeles, plans by J. A. Poulalion, 1033 E. Rosewood St., Ontario, 122 dwellings, Cheremoya, Ceres, Merril Sts. $1,000,000.

D. C., Wash.—CHURCH—Wesley Methodist Church, Connecticut Ave. and Jocelyn St. N.W., plans by Philip H. Frohman, 1741 De Sales St. N.W., church at Connecticut Ave. and Juniper St. N.W. $700,000.

▲ Ill., Chicago—PROFESSIONAL SERVICES and PAVILLION—Michael Reese Hospital, Ellis Ave. and 31 St., plans by Childs & Smith, 20 N. Wacker Dr., 6 story professional service bldg. and pavillion, $3,700,000. CD 1/26/51.

Ill., Chicago—CONVENT, etc.—St. Bede's Parish, 8233 S. Kilbourn St., plans by John L. Bartolomeo, 10828 S. Western St., convent, church and school, near Crawford and 87 St. $500,000.

Ill., Oak Park—SYNAGOGUE—Washington Blvd. Temple, 23 N. Karlov St., synagogue, Harlemand Berkshire Sts. $500,000.

▲ Ind., Greencastle—LIBRARY—De Pauw University Alumni Foundation, Greencastle, library $1,000,000. J. Russell Bailey, Orange, Va., designing archt. Daggett, Naegele & Daggett, Inc., 350 East Fall Creek Parkway North Dr., Indianapolis, superv. archt. CD 5/25.

Ind., South Bend—SCIENCE—Saint Mary's College, Notre Dame, plans by Naess & Murphy, 80 E. Jackson Blvd., Chicago, Ill., science building $700,000.

Kan., Topeka—SHOPPING CENTER—White Lakes Shopping Center, E. E. Brunkow, owner, 3400 Topeka St., plans by Roger Frangkiser, archt., G. W. Tewksbury & G. E. Heffley, assoc archts., 803½ W. 39 St., Kansas City, Mo., shopping center at former location of White Lakes Country Club. $500,000.

▲ Mich., Dearborn—SHOPPING CENTER—Westland Center, J. L. Hudson Co., 1206 Woodward St., Detroit, plans by Victor D. Gruen, 1903 Industrial Bldg., Detroit, shopping center, incl. 300,000 sq. ft. for stores, parking area, Hudson Center No. 3, Ford and Southfield Sts., $10,000,000.

▲ Mich., Detroit—CHURCH UNIT—St. Paul's Episcopal Cathedral, 4800 Woodward St., plans by Ralph Calder, 1212 Kales Bldg., and Harley, Ellington & Day, 153 E. Elizabeth St., church unit incl. parish facilities, diocese offices, faculty members of Wayne University, Canterbury Club, L-shaped wing on existing bldg. $1,500,000.

Mich., Gratiot—HOSPITAL—Gratiot Community Hospital, Bd. Trustees, Gratiot, plans by Clark R. Ackley, 1811 East Michigan Ave., Lansing, 2 or 3 story, community hospital, to serve Gratiot, Montcalm, Saginaw and Isabella Counties. $550,000.

▲ Mich., Waterford—SHOPPING CENTER—Federal Department Stores, Inc., 1200 E. X Six Mile Rd., Highland Park, plans by Charles N. Agree, 1140 Book Bldg., Detroit, shopping center incl. stores, parking facilities, 80 acre site, Elizabeth Lake Rd. $4,000,000.

Mo., Springfield—LIBRARY—Southwest Missouri State College, Springfield, plans by Easterly & Amspacher, Springfield, library. $600,000. CD 1/11/46.

▲ N. J., Haddon Heights—SHOPPING CENTER—Crystal Lake Shopping Center, c/o Jack J. Bader, 1104 Land Title Bldg., Phila., Pa., plans by Henry S. Berg, 1411 Walnut St., Phila., Pa., shopping center, Crystal Lake Ave. $1,000,000.

▲ N. J., Trenton—STORES—Arnold Constable & Co., 5 Ave. and 40 St., New York, N. Y., plans by Gerhard E. Karplus, 315 E. 68 St., New York, N. Y., two stores. $1,000,000. CD 1/9/52.

▲ N. Y., Flushing—APARTMENT—Samuel Match, c/o Morris Rothstein & Son, archts., 186 Joralemon St., Brooklyn, Zone 2, 6 story apartment, 34 Ave., east of Union St. $1,400,000.

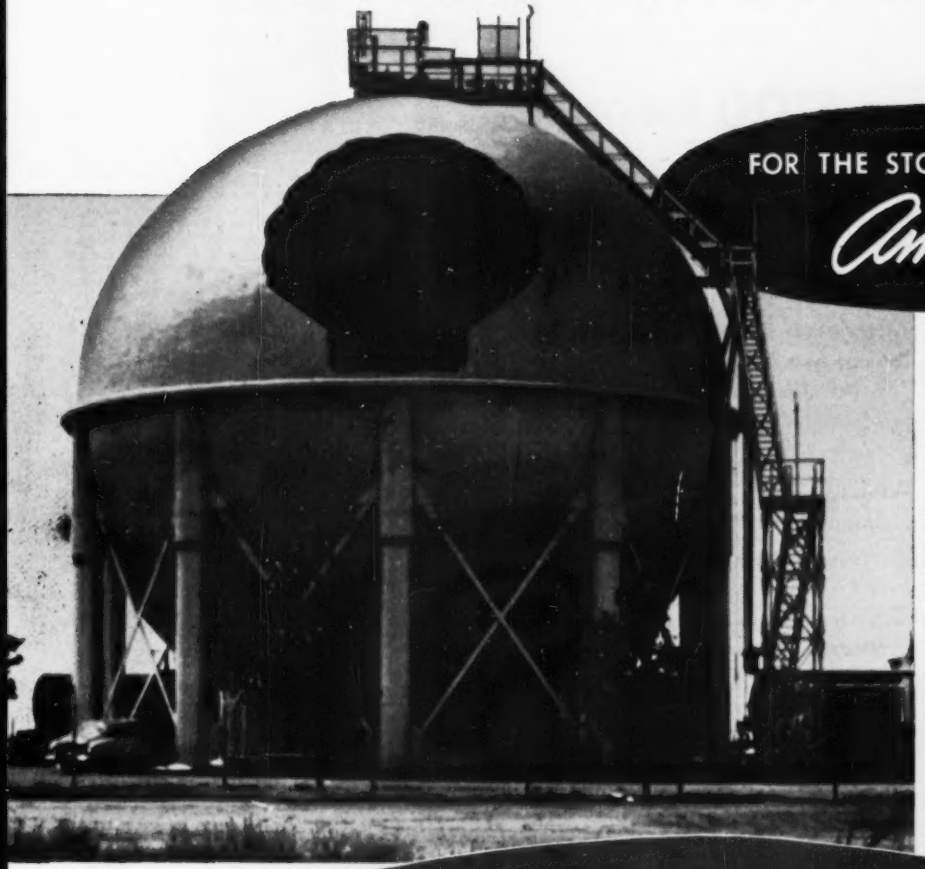
N. Y., Jamaica—APARTMENT—Kalikow Constr. Co., 16 Court St., Brooklyn, Zone 2, plans by Morris Rothstein & Son, 186 Joralemon St., Brooklyn, Zone 2, 6 story apartment, Van Wyck Expressway and 86 Ave. $750,000.

N. Y., Jackson Heights—APARTMENT—Ritalfo Building Corp., c/o Seelig & Finkelstein, archts., 153 Pierrepont St., Brooklyn, Zone 2, 6 story apartment, 83 St., south of 37 Ave. $576,000.

O., Columbus—SALES OUTLET—Bond Stores, Inc., 5 Ave. and 35 St., New York, N. Y., 3 story bsmnt., brick, concrete, steel retail sales outlet, 43 N. High St. $500,000.

(Continued on page 127)

PRESSURE SPHERES



FOR THE STORAGE OF

Ammonia

- EFFICIENTLY
- DEPENDABLY
- ECONOMICALLY

PITTSBURGH•DES MOINES

Steel Pressure Spheres for the storage of ammonia are typical of the wide range of vessels fabricated by Pittsburgh-Des Moines for containing liquids and gases of many different kinds. The sphere illustrated is 65 ft in diameter, and operates at 55 lb working pressure. • Let us consult on your storage problems of pressure and temperature, and quote on the correct structure for your particular needs.

PITTSBURGH•DES MOINES STEEL CO.

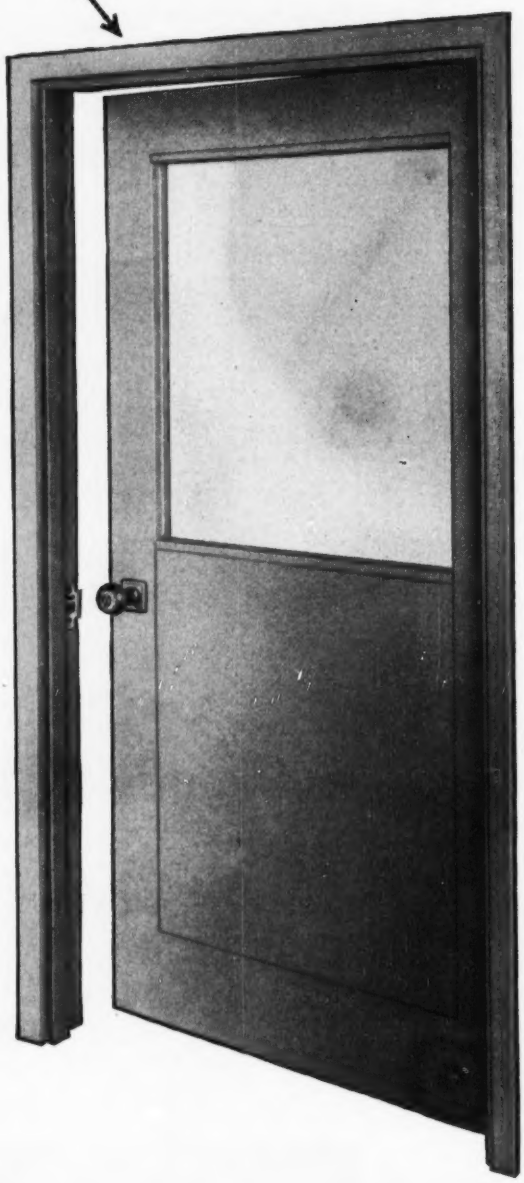
Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

PITTSBURGH (25) . . . . . 3414 Neville Island
NEWARK (2) . . . 216 Industrial Office Bldg.
CHICAGO (3), 1218 First National Bank Bldg.
LOS ANGELES (48), ... 6399 Wilshire Blvd.
DES MOINES (8), 915 Tuttle Street
DALLAS (1), 1219 Praetorian Bldg.
SEATTLE . . . . . 522 Lane Street
SANTA CLARA, CAL., 621 Alviso Road

You can save $100 here

. . . if you fill it with this



In fact you can save up to $100 for *every* unfilled door opening in your new building. You'll save that much on installed cost by filling that opening with a Fenestra* Hollow Metal Door-Frame-Hardware Unit instead of some other kind of hollow metal door.

HERE'S WHY:

Fenestra Hollow Metal Flush Doors cost less to buy because they are mass produced on special jigs that cut out a lot of expensive time and labor. This system was born of Fenestra's years of metal fabricating experience.

You save on installation cost because these handsome doors come complete with strong, prefitted, prime-painted steel frames and shining hardware. Again time and labor are saved. There's no cutting or fitting—the door is in and in use a lot more quickly.

You save maintenance costs because Fenestra Hollow Metal Doors can't warp, swell, stick or splinter. They always open easily . . . smoothly. And they close quietly, because inside the panels is double insulation.

For strong, solid quality at unusually low cost, check on Fenestra Doors—there's a door for every purpose in the Fenestra line: Entrance Doors, Flush or Regular Interior Doors with glass or metal panels, Doors with the Underwriters' B Label. For pictures and details, write the Detroit Steel Products Company, Dept. ER-11, 2286 East Grand Blvd., Detroit 11, Michigan. *®

Fenestra

HOLLOW METAL DOOR—FRAME—HARDWARE UNITS

. . . save building time, labor, materials and money

(Continued from page 124)

▲ **O., Columbus**—APARTMENT—Tibbals, Crumley & Musson, 965 E. Broad St., apartment, Bryden Rd. and Parsons Ave. $3,000,000.

▲ **O., Garfield Heights**—DWELLINGS—Elrose Constr. Co., 1691 Edgefield Rd., Lyndhurst, Zone 24, one hundred ten 1½ story, frame dwellings, Woodward Blvd. $1,650,000.

▲ **O., Garfield Heights**—DWELLINGS—Epstein Constr. Co., 4294 Mayfield Rd., South Euclid, Zone 21, one hundred five 1½ story, frame dwellings, Clearview Ave. $1,575,000.

▲ **O., Rocky River**—OFFICE—Albert Levin, Natl. City Bank Bldg., Cleveland, Zone 14, 4 story, full-bsmnt. office, W. 210 St. and Center Ridge Rd. $1,500,000.

▲ **O., Solon**—APARTMENTS—Solon Park, Inc., Chagrin Mills Rd., plans by Henry C. R. Grieme, 35 N. Main St., Chagrin Falls, six 8 suite, brick, stone constr. with steel and concrete floors apartments, two 16-suite apartments with garage, 4-acres, Aurora Rd., near Solon Rd. $1,000,000.

▲ **Pa., Abington**—SHOPPING CENTER—York Road Community Chopping Center, Inc., c/o Lilley & Co., Packard Bldg., Phila., plans by Robert Montgomery Brown, 1728 S. Price St., Phila., shopping center, 50 stores, Baederwood. $10,000,000. CD 1/6.

▲ **Pa., Phila.**—HOTEL—Sheraton Corp. of America, 1 Court St., Boston, Mass., plans by Perry, Shaw, Hepburn, Kehoe & Dean, 31 St. James Ave., Boston, Mass., Sheraton Hotel in "Penn Center". $14,000,000. CD 6/26.

▲ **R. I., Providence**—HOSPITAL—Providence Laying-In Hospital, Howard R. Merriam, pres., 50 Maude St., plans by Howe, Prout & Ekman, 17 Custom House St., wing addn. $1,500,000.

▲ **Tex., Austin**—CONVENT, etc.—Church of St. Ignatius Martyr, c/o Most Rev. Louis J. Reicher, Bishop of the Diocese of Austin and Rev. Eugene Dore, Pastor, College St., convent, $325,000; church rectory and parish hall, $375,000; 400-student dormitory, $350,000; administration and classrooms, $300,000, 5½-acre tract.

Tex., Austin—OFFICE—Texas Casualty Co., 306 E. 10 St., plans by John Chiles Allen, 510 Atlanta St., 2 story (ultimately 4 story) bsmnt., rein.-con., brick office, air-conditioning, etc. $350,000.

▲ **Tex., Dallas**—SHOPPING CENTER—A. Harris & Co., Main and Akard Sts., plans by Smith & Mills, Mercantile Bank Bldg., Dallas, and Walter Becket & Assoc., 5657 Wilshire Blvd., Los Angeles, Calif., shopping center, $5,000,000; grading and hard paving on tract for parking 3500 autos, $175,000 in area of Giest, Beckley and Zang Sts. CD 8/18.

▲ **Tex., Dallas**—SPECIALTY SHOPS—A. Harris & Co., Main and Akard Sts., plans by Welton Becket & Asocs., archts., 5657 Wilshire Blvd., Los Angeles, Calif., and Smith & Mills, assoc. archts., Mercantile Bank Bldg., specialty shops, Unit 1, $400,000; Unit 2, $375,000; Unit 3, $500,000; Unit 4, $475,000; Unit 5, $300,000, in area of Giest, Beckley and Zang Sts.

▲ **Tex., Dallas**—TEMPLE—Temple Amanu-El, 1900 South Blvd., plans by Howard Meyer, 2907 Maple St., and Max Sandfield, 3722 Bowser St., temple. $1,500,000.

▲ **Tex., Houston**—DWELLINGS—R. V. & W. K. King, Bankers Mortgage Bldg., plans by Matt Howard Jr. & Assocs., 1012 LeHall St., 42 one story cedar shake dwellings, concrete slab fdn., $335,000; 48 cedar shake dwellings, concrete slab fdn., $384,500; 36 frame, cedar shake dwellings, concrete slab fdn., $306,250; misc. types, masonry, frame dwellings, concrete slab fdn., $325,000; 33 one story frame, masonry, cedar shake dwellings, $300,000, in an area of Langwood Addn., near here.

▲ **Tex., Houston**—DWELLINGS—Meadowbrook Lumber & Building Co., 4602 Winkler St., 40 cedar shake dwellings, concrete slab fdn. $377,500; 33 frame, masonry dwellings, concrete slab fdn. $310,000; 32 frame dwellings, concrete slab fdn. $325,000 in new area Freeway Manor addn., near here.

▲ **Tex., Irving**—SHOPPING CENTERS—Mayflower Investment Co., Carr P. Collins, pres., 912 Commerce St., Dallas, shopping centers, Unit No. 1, $750,000; Unit No. 2, $1,500,000; Unit No. 3, $2,000,000; Unit No. 4, stores unit shopping center, $2,250,000, in a 110-acre tract.

▲ **Tex., Spring Branch**—SHOPPING CENTERS—Phil B. Traweek, 1122 Loeser St., Houston, plans by F. Avanzini, 114 Norview St., shopping centers, Unit 1, $600,000; Unit 2, $400,000.

Va., Alexandria—HOTEL—Builders & Realty Corp., 610 Montgomery St., plans by B. L. Frishman, 619 Penn. Ave. N.W., Wash., D. C., 2 story, 92 room masonry hotel. $600,000.

▲ **Ont., Ottawa**—APARTMENT-HOTEL—Frank Brodie, Barrister, 46 Elgin St., 6 story, 66x200 ft. apartment-hotel, Rideau and Cumberland Sts. $1,000,000.

INDUSTRIAL BUILDINGS

Ill., Chicago—FACTORY—Hi-Life Packing Co., 431 S. Dearborn St., plans by Ralph C. Harris, 53 W. Jackson Blvd., Zone 4, factory, 49 and Major Sts.

▲ **Ind., New Albany**—POWER PLANT—Public Service Co. of Indiana, Inc., 1000 E. Main St., Plainfield, plans by Sargent & Lundy, 140 S. Dearborn St., Chicago 3, Ill., power plant, 170-acres in First purchase. $45,000,000. CD 7/8.

Ind., New Castle—PLANT—New Castle Products Co., 1711 I Ave., plans by John P. Guyer, 200½ S. 14 St., 2 story, 77x137 ft. PLANT addn., "I" Ave. and 18 St. $150,000.

(Continued on page 130)

Kan., Topeka—GRAIN ELEVATOR—Topeka Mill & Elevator Co., E. 10 and Santa Fe Tracks, Topeka, grain elevator. $750,000.

▲ **Ky., Louisville**—PLANT—Louisville Gas & Electric Co., 311 W. Chestnut St., generating plant Paddy's Run, $14,000,000.

Mass., Needham—WAREHOUSE, etc.—Bigelow & Dowse Co., 169 A St., South Boston, 200x450 ft., steel, masonry warehouse and office, off Rte. 128. $500,000. Goldberg-LeMessurier Assoc., 739 Boylston St., Boston, consult. engrs.

▲ **Mass., North Andover**—PLANT—Western Electric Co., 195 Broadway, New York, N. Y., 90,000 sq. ft. mfg. plant, Rte. 125, Ward Hill. $10,000,000. Preparation of site let negotiated contract to Gilbane Building Co., 90 Calverly St., Providence, R. I.

▲ **Mich., Muskegon**—POWER PLANT—Consumers Power Co., D. E. Karn, pres., 212 Michigan Ave. W. Jackson, 135,000 kv. brick, steel, concrete steam generating addn. to B. S. Cobb Power Plant. $15,000,000. CD 2/26/46.

▲ **Mich., Niles**—FACTORY—National Standard Co., Alfred H. Johnson, pres., Niles, 1 story, 100x500 ft., brick, steel factory unit, Wayne and 11 Sts., $1,500,000.

▲ **Mo., Kansas City**—PLANT—Avon Products, Inc., O. F. Blattler, local mgr., 16 and Walnut Sts., 100,000 sq. ft. distribution plant for cosmetics, etc. on 8.2 acre tract, U.S. 71 and Bellefontaine. $1,000,000.

Neb., Nebraska City—GRAIN ELEVATOR—Butler-Welch Grain Co., Grain Exchange, Omaha, grain elevator. $300,000.

Neb., South Sioux City—GRAIN ELEVATOR—O'Neill Grain Co., O'Neill, grain elevator. $500,000.

▲ **N. J., Metuchen**—PLANT—Ford Motor Co., Lincoln-Mercury Div., 6200 W. Warren St., Dearborn, Mich., plant addn., relocating railroad, roads, storage areas, fire loops and parking lots, over $2,000,000.

▲ **N. Y., Jackson Heights**—GARAGE, etc.—Triboro Coach Corp., 69-01 35 Rd., Woodside, garage bldg. and repair shops, 4-acre site from 65 to 80 Sts. and 23 to 24 Aves. $1,000,000.

▲ **O., Cleveland**—MILL and STORAGE AREAS—American Steel & Wire Div., U. S. Steel, Rockefeller Bldg., Zone 14, rod mill and rod and billet storage areas, E. 49 St. and Harvard Ave., Cuyahoga Heights Plant. $10,000,000. Floyd Garman, c/o owner, ch. engr.

Tex., Dallas—TRANSFORMER STATION—Dallas Power & Light Co., Dallas Power & Light Bldg., addn. transformer station in Oak Cliff, Beckley and Overton Sts. $551,000. CD 10/2/50.

Ont., Kitchener—BREWERY—Dow Kingsbeer Brewery, W. Gagnon, pres., Kitchener, brewery addns., remodeling. $500,000.

ANOTHER BONDACTOR APPLICATION

Inside walls of a Philadelphia Church being completely waterproofed with the BONDACTOR. Plaster was then applied in the usual manner.

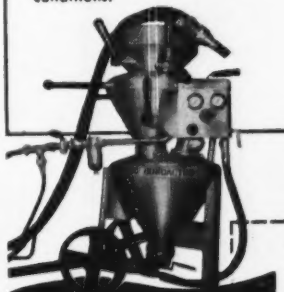
There's A BONDACTOR That's Right For Your Needs

Model 750. Capacity: ½-¾ cu. yd. per hr. Operates with 80 or 105 CFM compressor.

Model 1250-S. Capacity: ¾-1½ cu. yds. per hr. Operates with 105 CFM compressor.

Model 1250-L. Capacity: 1½-3 cu. yds. per hr. Operates with 210 CFM compressor.

Capacities vary with material being gunned and with specific operating conditions.



AIR PLACEMENT EQUIPMENT COMPANY

1007 West 24th Street
Kansas City 8, Missouri

Faster, Less Costly Wall Waterproofing *with a* BONDACTOR

Gun your own concrete, refractories and other cementitious materials with a BONDACTOR. You'll save time, you'll save labor, and *you'll* keep the profits. A few of the many jobs that will keep your BONDACTOR busy the year around are: steel encasement for fireproofing and insulation, bunker, hopper and stack lining, pipe grouting and many types of repair and maintenance. Using a special nozzle, the BONDACTOR is also an efficient wet or dry sandblasting machine.

Mail Coupon Today For Free Literature

I am considering using the BONDACTOR for _____ using _____ materials.

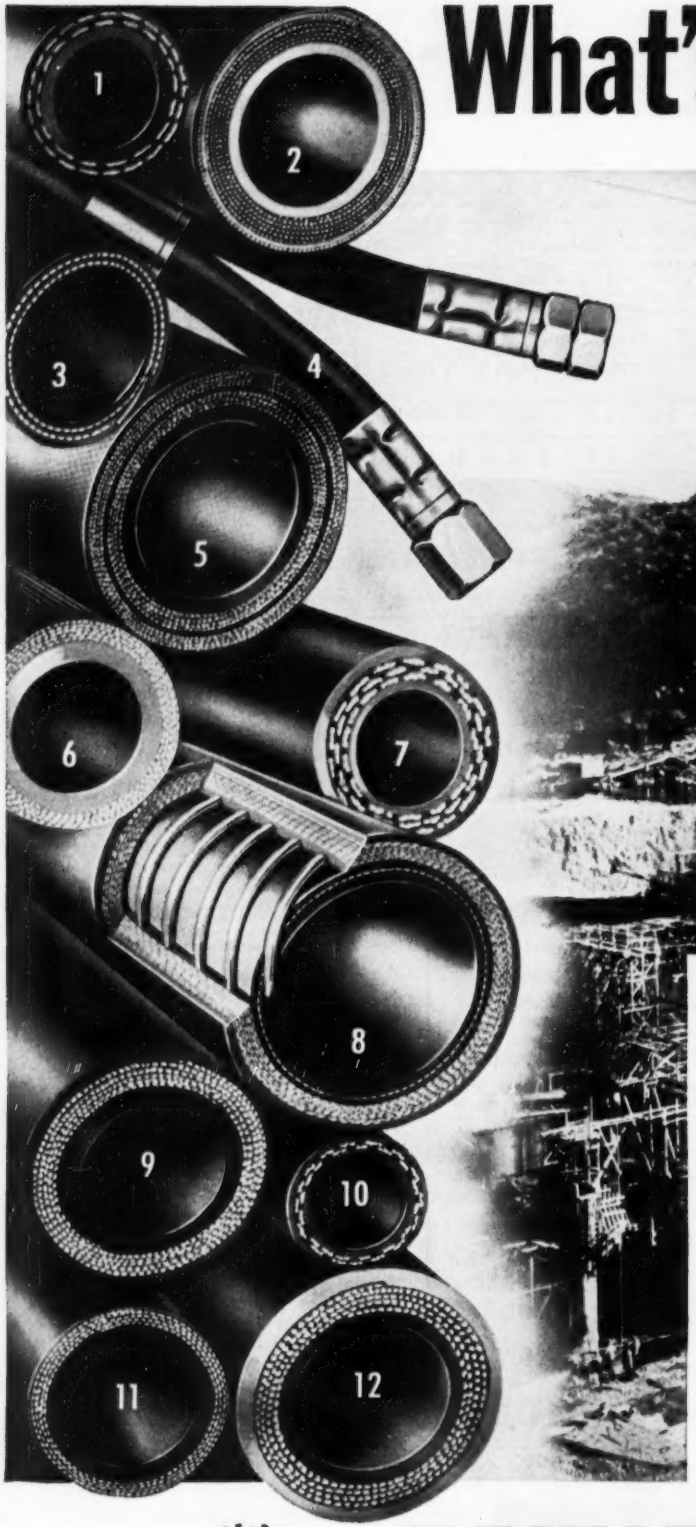
Name _____

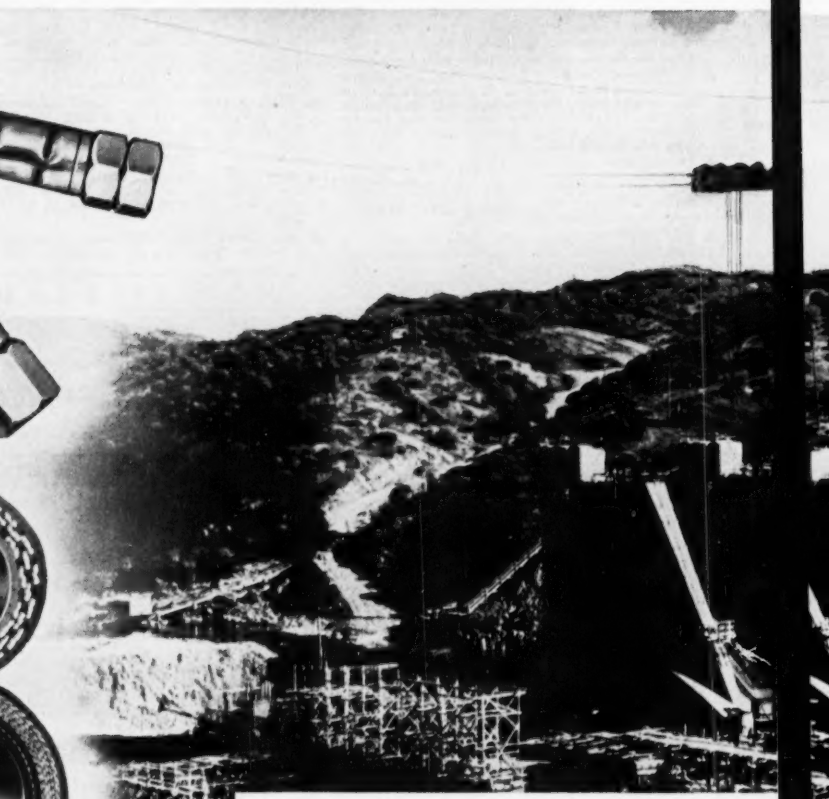
Firm _____

Address _____

City _____ Zone ____ State _____

What's Your Need





1—All Purpose
2—Pile Driver
3—Water Suction
4—Twin-Weld®
5—Dredge Sleeve
6—Cement Placement
7—Air Drill
8—Sand Suction
9—Steam
10—Water
11—Air
12—Road Builders

When your job calls for hose . . . any type of construction hose . . . always specify Hewitt-Robins Hose. On job after job it has proven the best buy for safe, economical, long-term performance.

Hewitt-Robins manufactures a complete line of quality hose for the entire construction industry. You'll find there's one to meet your every need.

HEWITT-ROBINS

EXECUTIVE OFFICES, STAMFORD, CONNECTICUT

For Construction Hose?

INCORPORATED

DOMESTIC DIVISIONS: Hewitt Rubber • Robins Conveyors • Robins Engineers • Restfoam
FOREIGN SUBSIDIARIES: Hewitt-Robins (Canada) Ltd., Montreal • Hewitt-Robins Internationale, Paris, France • Robins Conveyors (S. A.) Ltd., Johannesburg • **EXPORT DEPARTMENT:** New York City.

CHECK FOR INFORMATION ABOUT THESE JOB-TESTED PRODUCTS FOR YOUR OPERATION

CONVEYORS:
- ☐ —Belt
- ☐ —Sectional
- ☐ —Vibrating

BELTING:
- *☐ —Elevator
- *☐ —General
- *☐ —Raynile®
- ☐ —Woven Wire
- ☐ BUCKET ELEVATORS
- ☐ IDLERS

SCREEN CLOTH:
- ☐ —Electrically Heated
- ☐ —General

VIBRATING SCREENS:
- ☐ —General
- ☐ —Heavy-Duty Scalpers

HOSE:
- *☐ —Air
- *☐ —Air Drill
- *☐ —Cement Placement
- *☐ —Fire
- *☐ —Jetting & Grout
- *☐ —Pile Driver
- *☐ —Servall® (All Purpose)
- *☐ —Steam
- *☐ —Twin-Weld®
- *☐ —Water
- *☐ —Water Suction & Discharge

- ☐ MECHANICAL FEEDERS
- ☐ STACKERS
- ☐ CAR SHAKEOUTS
- ☐ RUBBERLOKT® BRUSHES
- ☐ DESIGN AND CONSTRUCTION OF COMPLETE MATERIALS HANDLING SYSTEMS

*For immediate information about these industrial rubber products, call your Hewitt Rubber Distributor (See "Rubber Products" Classified Phone Book).

Hewitt-Robins Incorporated
666 Glenbrook Road
Stamford, Connecticut

NAME _____

TITLE & COMPANY _____

STREET ADDRESS _____

CITY _____ PO ZONE _____ STATE _____

Total Patching Cost

(Materials, labor, processing)

$3.75 per ton

with the H&B Moto-Patcher

● Here's an example of the way the Moto-Patcher cuts patching costs. According to Mr. Fred Tayntor, Commissioner of Public Works, Rome, N. Y., prior to May 15 their Moto-Patcher had mixed over 1500 tons of patch material (50% ¾" stone—50% ¼" stone) with RC No. 3 cutback as the bituminous material. The total cost, including materials, labor and processing, was $3.75 per ton.

This mobile mixing unit delivers up to 10 tons per hour of freshly mixed material. Automatic control of the metering of the asphalt and feeding of the aggregate insures a constantly uniform mix. The 400 gallon tank, which is an integral part of the unit, provides an adequate supply of bitumen—making frequent stops unnecessary. Aggregate may be either shoveled into the hopper or fed in by gravity directly from a truck by means of a small elevator (optional equipment) as shown above.

Other optional equipment includes a specially designed dryer and adjustable spreader attachment.

For further information send for Bulletin MPD-53

HETHERINGTON & BERNER INC. • *Engineers-Manufacturers*

730 Kentucky Avenue • Indianapolis 7, Ind.

from
●
●
OFFICE MANAGER
●
to
●
GENERAL MANAGER
●
●

yes, that is the quality of the personnel available to your organization through the Classified Advertising pages of ENGINEERING NEWS-RECORD.

Classified Advertising Division

ENGINEERING NEWS-RECORD

330 W. 42nd St. New York 36, N. Y.

(Continued from page 127)

Ont., London—PLANT—Nopco Chemical Co., 15 Essex St., Harrison, N. J., U. S. A., enlarging plant. $100,000.

Ont., Toronto—POWER PLANT—Simpsons-Sears Ltd., 176 Yonge St., plans by J. B. Parkin Assocs., 717 Church St., 5 story, full bsmnt., 60x120 ft. power plant at site of new warehouse, west of Old Malton Rd., at Islington Ave. $350,000.

Ont., Windsor—PLANT EXPANSION—John Wyeth & Brothers (Canada) Ltd., 2109 Ottawa St., plant expansion pharmaceutical plant, incl. power house and 45,000 sq. ft. span $750,000. Giffels & Vallet of Canada Ltd. Canada Trust Bldg., consult. engrs.

Que., Montreal—PRINTING PLANT—Benallack Press Ltd., 960 Victoria Sq., plans by P. Booth, 485 McGill St., printing plant, Boyce St. $150,000. T. Pringle & Son Ltd., 485 McGill St., consult. engrs.

▲ **Sask, Prince Albert**—PULP MILL—Anglo-Canadian Pulp & Paper Mills Ltd., 10 Blvd. des Capucins, Quebec City, Que., pulp mill at Candle Lake area, 50 mi., northeast of here, $5,000,000.

UNCLASSIFIED

Calif., Redding—PLAYGROUND—City, City Hall, bond election Dec. 15, playground, $100,000.

Florida—RURAL DISTRIBUTION LINES—Suwanee Valley Electric Co-operative, Live Oak, 55 mi. rural distr. lines and sys. imprvs., Lafayette Co. $660,000.

▲ **Illinois**—RAILROAD TRACKS—Missouri Pacific R.R., R. P. Hart, ch. engr., Missouri-Pacific Bldg., 13 and Olive Sts., St. Louis 3, Mo., raising and relocating 21 mi. railroad tracks between Kaskaskia River and Thebes. $5,555,000. CD 11/28/45.

▲ **Ill., Chicago**—STREET LIGHTING SYSTEM—City, City Hall, voted $10,000,000 bonds, imprvs. and extending electric street lighting system. CD 10/28.

Ind., Indianapolis—TELEVISION TRANSMITTER, etc.—Station WFBM-TV, 1330 N. Meridan St., television transmitter and equipment, 86 and Ditch Rd., on 100-acre site 2 mi. west of U. S. Hy. 31, $500,000.

Mich., Hazel Park—GRANDSTAND—Hazel Park Racing Assoc., 1650 E. Ten Mile Rd., exten., imprv. horse racing plant, incl. roofing over grandstand, new barns, press box, etc. $250,000.

▲ **Minn., St. Paul**—PARKS, etc.—City, City Hall, voted $1,500,000 bonds, parks and playgrounds.

N. Y., Flushing—COMPORT STATION, etc.—Dpt. Parks, Arsenal Bldg., New York, Zone 21, plans by Brown & Blauvelt, 468 Fourth Ave., New York, Zone 16, comfort station, playground, 31 Dr. and 140 St. $165,000.

O., Bay Village—SWIMMING POOL—City, 350 Dover Center Rd., defeated bonds Nov. 3, swimming pool. $120,000. CD 7/22.

▲ **O., Cleveland**—SUBWAY—Cuyahoga Co., Court House, voted $35,000,000 bonds Nov. 3, downtown subway. CD 9/16.

O., Parma—SWIMMING POOLS—City, City Hall, 6611 Ridge Rd., voted bonds No. 3, two swimming pools. $300,000. CD 9/25.

O., Rocky River—SWIMMING POOL—City, City Hall, 19120 Detroit Rd., defeated bonds Nov. 3, swimming pool. $500,000. CD 9/29.

O., University Heights—SWIMMING POOL—City, 2300 Warrensville Center Rd., defeated bonds Nov. 3, swimming pool. $150,000. CD 9/25.

O., Upper Arlington—SWIMMING POOL—Village, voted bonds Nov. 3, swimming pool. $150,000. CD 9/29.

O., Wickliffe—SWIMMING POOL—City, 29020 Euclid Ave., defeated bonds Nov. 3, swimming pool. $175,000.

† **Pa., Phila.**—ELECTRICAL WORK, etc.—Dpt. Navy, Phila. Naval Base, electrical work and steam facilities, Naval Hospital, Naval Ammunition Depot. $760,000. Ewing Eng. Co., Western Saving Fund Bldg., consult. engr.

▲ **Texas**—PIPE LINE—Phillips Petroleum Co., Bartlesville, Okla., 54 mi. 6 in. products line, Goldsmith to Borger, $478,000; 52 mi. 10 in. products line between Sweeny and Shell's Brookshire Sys. $745,000.

† **Texas**—POWER LINES—U. S. Eng., 100 W. Vickery St., Fort Worth, relocation KV power lines 22.47 mi. Denton County Electric Co-op. 7.2 KV lines, Lewisville area, Acct. Garza-Little Elm Dam. $100,000-$1,000,000.

Tex., Olmito—PLAYGROUNDS, etc.—Lower Valley Girl Scout Council, Brownsville, plans by Phelps, DeWees & Simmons, 1501-6 Majestic Bldg., San Antonio, playgrounds, rein.-con. swimming pool, recreation facilities, boating facilities, near Brownsville, 85-acre tract. $200,000.

▲ **Que., Montreal**—SUBWAY SYSTEM—Montreal Transportation Comn., 159 W. Craig St., subway system starting at Atwater Ave. east under St. Catherine St. south of Dominion Sq. to Victoria Sq. and then to Metropolitan Blvd. $120,000,000. De Leuw, Cather & Co., 150 N. Wacker Dr., Chicago, Ill., U. S. A., engrs. CD 11/20/52.

Que., Point St. Charles—BASEBALL STADIUM, etc.—Parks & Playground and P. Wks., Dpt., Point St. Charles, baseball stadium and sports center at Mullins and Hibernia Sts., $500,000; outdoor sports field at Ash and Leber Aves., $75,000.

ANOTHER

Low-cost

WAREHOUSE

USING

MONOCORD TRUSSES

Assembled and ready for erection are several of 28 Monocord Timber Trusses fabricated by Weyerhaeuser and furnished by Wallis Lumber Company for the 220' x 112' Del Monte products warehouse in Crystal City, Texas.

The market for wide-span; post-free buildings for commercial, industrial, farm and public uses is continually expanding.

You can obtain sound, economical framing members for this class of structure from the broad Weyerhaeuser line of structural wood products . . . many types of roof trusses in varying spans: trussed rafters; segmental arched rafters in 30 to 60 foot spans; buttressed arches for 50 to 100 foot spans; other structural members. Properly stress-graded lumber is used in fabrication.

Strong, durable members are delivered to your job site complete with hardware, ready for easy assembly and erection by local crews.

Write for the Structural Wood Products Catalog, and contact your local Weyerhaeuser 4-Square Lumber Dealer or us for specific information.

WEYERHAEUSER SALES COMPANY

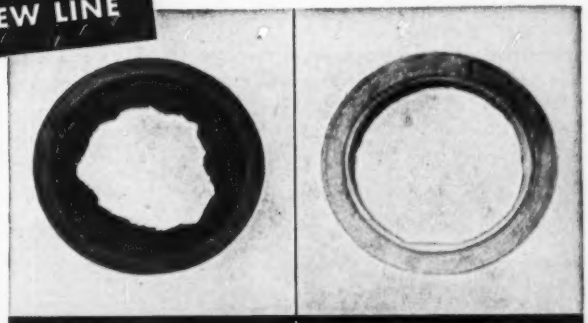
Fabricating Department

TACOMA, WASH. • SAINT PAUL 1, MINNESOTA • NEWARK, N. J.

REHABILITATE YOUR OLD PIPE LINE AT MUCH LESS THAN THE COST OF A NEW LINE

Without appreciably disturbing present service . . . you can get new pipe line performance from old cast iron or steel pipe line. Line that pipe to give a new, continuous, smooth-surface. Ask PIPE LININGS, INC. to use the processes that apply cement mortar lining quickly to pipe line interiors... with only momentary interruption to install sectional by-pass lines. You can do it at much less than the cost of installing a new pipe line. Write TODAY!

Tate process used on Line 4" to 16". Centriline Process used on Line 16" to 144". Consult our hydraulic engineers . . . they are at your service.



BEFORE | AFTER

CEMENT MORTAR LINING WILL . . .

Protect against discoloration and contamination
Protect against corrosion
Improve flow coefficients
Prevent leakage
Reduce maintenance costs
Reduce pumping costs

PIPE LININGS, Inc.

A subsidiary of
American Pipe and Construction Co.
4675 Firestone Blvd.
South Gate, California

PIPE LININGS INC.
4675 Firestone Blvd., South Gate, Calif.
Please send complete information on how we can obtain new pipe line performance from our old line.

Name_____

Address_____

City_____ Zone___ State____

30 miles of timber piling

1350 tons of steel piling

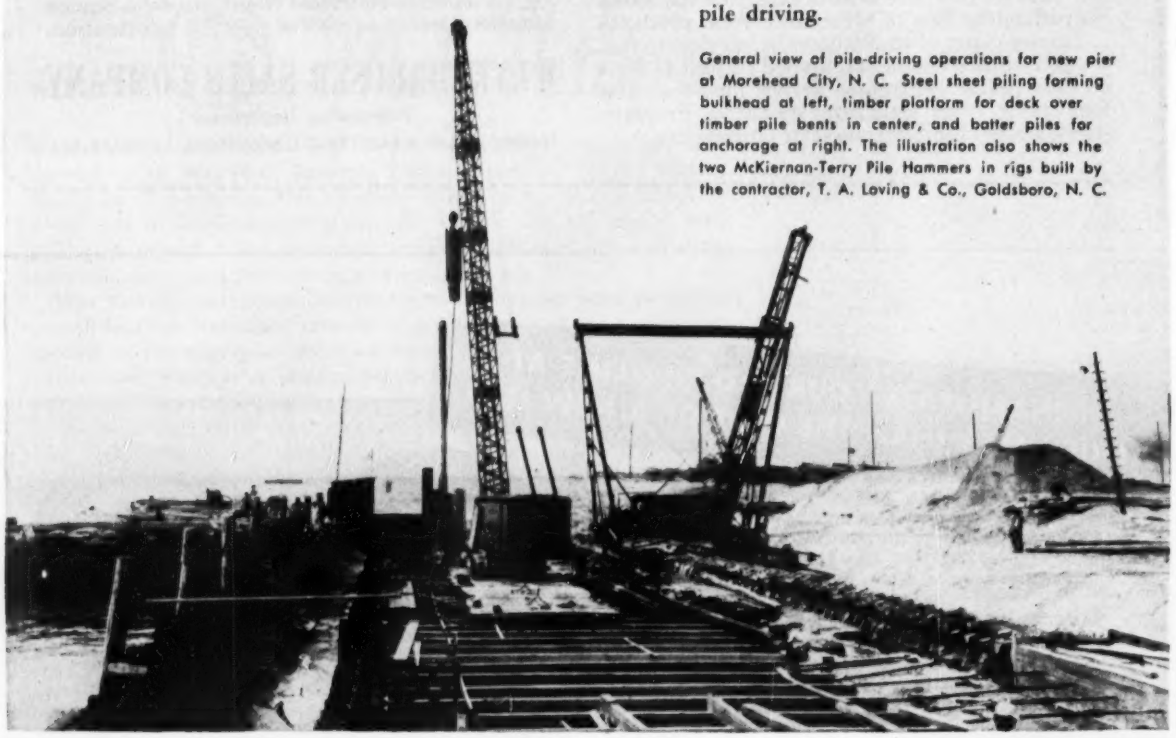
for a single pier
all driven by

McKIERNAN-TERRY
PILE HAMMERS

The new 1200-ft. dock at Morehead City, N. C., is built on soft silt. Timber piles 40 to 50 feet long had to be driven battered as close as possible for the anchorage system. The timber platform behind the bulkhead is supported by timber pile bents, and the bulkhead consists of U. S. Steel MZ-32 Piling 64 feet long.

Altogether, a forest of piles—all driven by McKiernan-Terry Pile Hammers. A McKiernan-Terry 9-B-3 was used for the steel piling and a McKiernan-Terry 9-B-2 drove the hundreds of timber piles. One more project added to the hundreds and hundreds of jobs on which the contractor chose McKiernan-Terry for assurance of speed, dependability, and accuracy in pile driving.

General view of pile-driving operations for new pier at Morehead City, N. C. Steel sheet piling forming bulkhead at left, timber platform for deck over timber pile bents in center, and batter piles for anchorage at right. The illustration also shows the two McKiernan-Terry Pile Hammers in rigs built by the contractor, T. A. Loving & Co., Goldsboro, N. C.



OTHER McKIERNAN-TERRY PRODUCTS

MEAD-MORRISON COAL AND ORE UNLOADERS AND BRIDGES
Available in a variety of designs and in capacities of 300 to 1500 tons per hour. Exceptional durability proven by installations in service for half a century. Simple controls afford convenient, comfortable and speedy operation.

GRAB BUCKETS
Range of types and sizes take bulk materials loads up to 25 tons. Ruggedness without excess weight.

HONING UP TO 42-IN. I.D. X 55-FT. LONG
Typical of the extensive facilities of McKiernan-Terry for unusual jobs.

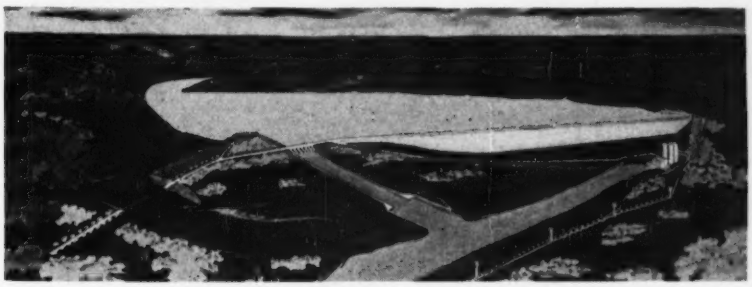
McKIERNAN TERRY

McKIERNAN-TERRY CORPORATION • MANUFACTURING ENGINEERS • 13 PARK ROW, NEW YORK 38, N. Y.

Plants: Harrison, N. J. and Dover, N. J.

MK322

UNIT PRICES



SEYHAN HYDROELECTRIC PROJECT—Earth-filled dam, 1,800 meters long. Largest single project ever awarded by Turkish Republic.

Hydroelectric project, Turkey

Ten bids were received by the Ministry of Public Works in Ankara for a major hydroelectric project located on the Seyhan River in southern Turkey. Morrison-Knudsen International Co., Inc., combined with the Garanti Insaat Ltd. of Istanbul entered the $14,286,000, low, contract-award bid. The bid was 30% below the engineers' estimate by Knappen-Tippetts-Abbett-McCarthy, New York City, and 7% below the second low bid.

This is the largest single contract ever awarded by the Turkish Republic. In addition, it is the first time this form of a modified cost plus a fixed fee contract has been used in Turkey.

The dam will be an earth-filled structure about 1,800 meters long with a maximum height of approximately 57 meters. An impervious section of cohesive materials and upstream and downstream pervious sections of conglomerate will comprise the dam embankment. Material to be excavated is estimated at 10,000,000 cubic meters of which about 7,300,000 cubic meters will be for the dam embankment.

The storage capacity of the reservoir to be created by the dam will be about 1,450-million cubic meters, with useful storage of about 575-million cubic meters.

The reservoir outlet is to consist of a reinforced concrete portal, a gated control structure, and a reinforced concrete lined tunnel 8 meters inside diameter and about 670 meters long through the left abutment leading to the powerhouse.

In a location near the downstream toe of the dam, in the left abutment, the powerhouse will house three reaction-type turbines and generators, only two of which will be installed initially.

The main spillway will consist of a tainter gate-controlled concrete structure located in the right side of the dam.

An uncontrolled emergency spillway and channel will be located in a natural depression in the right abutment. The combined capacity of the gated and emergency spillways will be about 5,000 cubic meters per second.

Summary of bids

Schedule	Eng est[1]	Bidder 1[2]	Bidder 2[3]	Bidder 3[4]
1—Reimbursable costs, general	$4,410,142	$2,602,880	$2,205,817	$3,994,694
2—Reimbursable costs, construction	13,775,267	9,749,037	11,341,887	22,478,060
labor	4,931,810	2,671,949	3,716,495	7,576,901
material	3,858,840	3,624,599	4,929,997	7,057,098
fixed charges	4,984,617	3,452,489	2,695,395	7,844,061
3—Fixed fee	1,800,000	1,100,000	1,400,000	2,718,581
4—Construction equipment	250,000	768,770	367,607	483,775
Total of schedules	20,235,409	14,220,687	15,315,311	29,675,110
Fixed charges/labor + material	56.70%	54.82%	31.17%	53.60%
Schedule 3/schedule 2	13.07%	11.28%	12.34%	12.09%

[1] Knappen-Tippetts-Abbett-McCarthy Eng. Co., New York, New York
[2] Morrison-Knudsen International Co., Inc. & Garanti Insaat, Ltd., Istanbul
[3] Charles H. Tompkins & Co., J. A. Jones Const. Co., Beton & Monierbau A. G., Societe Transcontinentale de Travaux Publiques, & Rabbi Gergen, Istanbul
[4] Strabag Bau A. G., Heinrich Butzert R. G., Heilman & Littman Bau A. G.

Schedule 2

Bids: 6-22-53 Items	Unit	Quantity	Unit Prices 1 C	2
Care of river & unwtr wrk area	ls	1	$61,150	$64,000
Cofferdams	cm	200,000	0.09	0.35
Contractors constr camp	ls	1	354,370	954,750
Temp access bridge	ls	1	53,490	125,392
Access & haul roads	ls	1	68,210	55,357
Strengthen exist bridges	ls	1	10,230	11,857

Bids: 6-22-53 Items	Unit	Quantity	Unit Prices 1 C	2
Stripping	cm	200,000	0.19	0.42
Exc dam fndn	cm	3,700,000	0.22	0.42
Exc core trench	cm	60,000	0.75	0.42
Exc left abutment	cm	300,000	0.66	0.42
Exc spillway	cm	1,000,000	0.62	0.42
Emrg spillway & borrow	cm	4,300,000	0.42	0.42

Continued on following page

SAVE TIME AND MONEY DRAFTING

Don't letter title blocks, specification boxes, symbols, standard components and sub assemblies, standard cross sections . . . in fact, anything that reappears on your drafting board over and over again. Use STANPAT . . . printed on sheets of matte surfaced acetate, backed with a heat resistant adhesive, ready to use in an instant. No special equipment required, just stick 'em down, and there they are.

SEND COUPON FOR STANPAT

STANPAT • Whitestone 57, N. Y., U.S.A.
Phone: Flushing 9-1693—1611

Please send me complete details on STANPAT, with samples and quotations on same.

Name .....
Company .....
Address .....

IF IT'S A

WET JOB

PLAY SAFE! ASK FOR A DEWATERING ANALYSIS BY

GRIFFIN WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

Reduce costs and INCREASE PROFITS by renting these metal forms for concrete

Economy Metal Forms save time, labor and material. They quickly lock together with a simple twist of a clamp. Standard units fit most jobs. Where needed, special forms can be fabricated to specification.

ECONOMY FORMS CORP.
Home Office: Des Moines, Iowa
DISTRICT SALES OFFICES: Kansas City, Mo. Omaha, Neb. • Minneapolis, Minn. • Fort Wayne, Ind. Cincinnati, Ohio • Pittsburgh, Pa. • Metuchen, N. J. Springfield, Mass. • Decatur, Ga. • Dallas, Texas Los Angeles, Calif. • Oakland, Calif. • Denver, Colo.

ECONOMY FORMS
metal forms for concrete construction

UNIT PRICES

Continued from preceding page

Bids: 6-22-53 Items	Unit	Quantity	Unit Prices 1 C	2
Intake pwrhse, tailrace & outlet	cm	750,000	0.59	0.42
Exc tunnel	cm	45,000		9.30
Exc drainage trenches	cm	30,000	0.60	1.38
F & I str stl ribs	kg	320,000	0.44	0.44
F & I wood lagging	cm	810	93.50	106.80
F & I dry packing	cm	4,000	2.55	3.12
Drill grout holes	lm	2,500	12.60	5.80
Pressure grouting	mt	1,500	40.20	28.80
F & P mat in dam embankment impervious	cm	900,000	0.29	0.29
F & P mat in dam embankment pervious	cm	6,165,000	0.03	0.03
F & P mat in gravel filters	cm	51,000	0.22	0.47
F & P spillway appr blanket	cm	8,000	0.35	1.80
F & P riprap conglomerate	cm	75,000	1.14	0.87
F & P riprap rock	cm	50,000	4.20	4.06
F & P conglomerate cobbles	cm	52,000	1.10	0.87
F & P compacted backfill	cm	12,500	1.73	0.99
Exc & process river deposits	cm	180,000	0.62	0.79
F & P roadway gravel	cm	8,400	1.40	1.57
F & P bit surf	sm	28,000	2.40	3.45
F & I hwy guard rail	lm	3,800	4.51	9.42
F & I piezometer observation sys	ls	1	10,370	60,285
F & I settlement gages	ls	1	7,340	2,350
Portland cement	mt	28,000	40.93	36.40
Conc, intake struct	cm	1,800	24.25	21.50
Conc, tunnel lining	cm	11,850	4.77	12.90
Conc, penstock, manifold, anchors & surge tank base	cm	17,950	3.66	10.80
Conc, powerhouse substr	cm	17,000	6.40	7.45
Conc, powerhouse sprstr	cm	1,800	31.00	42.30
Conc outlet valve, substr	cm	1,200	4.56	10.40
Conc, outlet valve, sprstr	cm	100	22.40	5.30
Conc, outlet channel lining	cm	2,500	6.15	13.60
Conc, tailrace retaining walls	cm	1,230	8.40	15.50
Conc blockouts	cm	100	36.00	18.30
Conc, emrg spillway	cm	4,500	4.00	6.60
Conc, spillway trans walls	cm	2,800	13.90	13.55
Conc, spillway weir, chute lining & bucket	cm	20,000	3.90	10.40
Conc, spillway piers & abuts	cm	2,710	14.70	14.30
Conc, spillway bridge dock	cm	270	15.40	20.35
Conc, switchyard & cable tunnel	cm	800	9.30	15.50
Conc, drain junct box	cm	110	25.30	15.50
Gunite	sm	3,500	0.59	3.25
F & I reinf stl	kg	2,300,000	0.24	0.30
F & I met waterstops	kg	4,000	3.65	2.04
F & I premolded joint filler	lm	750	2.56	1.14
F & I rubber water seals	lm	700	2.66	18.60
F & I conc pipe drains 15 cm dia open joint	lm	1,800	1.61	2.34
F & I conc pipe drains 20 cm dia open joint	lm	1,400	1.72	3.95
F & I conc pipe drains 40 cm dia open joint	lm	1,950	2.36	6.15
F & I conc pipe drains 50 cm dia classed joint	lm	610	3.40	10.20
F & I conc culvert pipe 50 cm dia	lm	200	4.76	11.45
F & I conc culvert pipe 1.0 m dia	lm	50	16.30	41.60
Brick partitions	sm	500	3.11	5.80
Dampproofing ext walls	sm	2,000	0.44	0.74
Roofing & flashing	sm	1,500	6.25	7.43
Met doors, met sash, louvers & hardware	ls	1	14,730	22,607
Met toilet partitions	sm	90	10.75	24.25
Suspended ceiling	sm	960	6.23	6.85
Plaster work	sm	1,200	1.79	1.57
Acoustic ceiling tiles	sm	200	5.63	19.25
Shelving, benches, counter, cabinets, lockers & furniture	ls	1	4,335	4,285
Wood doors, frames	sm	60	30.60	11.05
Tile work	sm	900	1.88	11.15
Terrazo work	sm	400	8.23	4.85
Marble work	sm	200	35.00	15.00
Rubber tile	sm	200	11.40	5.72
Metal expansion joints	kg	500	1.79	2.75
Painting interior surfaces	sm	3,000	1.97	1.32
Painting exterior steelworks & machinery	sm	1,500	2.17	3.72
Landscaping	ls	1	15,805	6,107
Woven wire fencing	lm	140	25.00	5.92
Furnish & construct warehouse storg. facilities	cm	1,000	11.60	17.25
Hauling equip. & mater. pieces less than 5 MT	mt	1,000	10.10	15.90
Hauling equip. & mater. pieces more than 5 MT	mt	500	12.40	19.70
Furnish lifting equip. for generator install	hr	100	28.10	10.90
Furnish operator for lifting equip	hr	200	6.26	1.07
Cleaning up	ls	1	14,883	12,606
Furnish & install miscellaneous metals	kg	90,000	0.91	0.78
Install steel penstocks & tunnel liner	kg	360,000	0.36	0.19
Install steel surge tanks	kg	1,800,000	0.16	0.10
Install embedded metal for spillway gate	kg	30,000	0.28	0.15

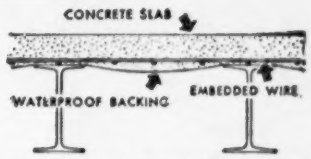
Bids: 6-22-53 Items	Unit	Quantity	Unit Prices 1 C	2
Install spillway gates	kg	98,000	0.18	0.15
Install spillway gate hoists, complete	ea		1,130	847.85
F & I rails for power house crane draft tube gantry crane & transformers	kg	23,000	0.34	0.30
F & I stl guides for trashracks & stl logs	kg	12,000	0.68	0.77
Install intake gates & stl guides	kg	143,000	0.23	0.114
Install intake gate hoists	ea	1	4,455	2,932
Install draft tube gates & steel guides	kg	29,000	0.15	0.09
Install gantry crane for draft tube gate	ls	1	2,245	1,071
F & I stl trashracks	kg	60,000	0.51	
F & I stlwrk in pwrhse sprstr & intake sprstr	kg	196,000	0.50	0.43
Install pwrhse bridge crane	ls	1	13,690	4,125
Install hydraulic turbines	ea	2	66,795	17,767
Install turb cont valves	ea	3	2,560	1,628
Install irrig penstock cont valves	ea	2	2,665	1,021
Install irrig free discharge valves	ea	2	2,790	1,353
F & I switchyard steelwork	kg	6,000	0.74	0.83
F & I met tubing & brass, stl WI & CI pipe fitt & valves less 15 cm nom dia	kg		4.92	1.09
F & I met tubing & brass, stl WI & CI pipe fittings & valves 15 cm nom dia & larger	kg	2,500	3.50	1.09
Install generator main leads & gear	ls	1	1,765	5,535
Install main power transformers	ls	1	1,050	1,982
Install main control switchboards	ls	1	1,375	1,275
Install load & frequency cont sys	ls	1	460.00	825.00
F & I sta cont battery & battery chargers	ls	1	5,635	7,892
F & I 125V dc aux panel boards & devices	ls	1	320.00	2,000
F & I emergency gas elect generators	ls	1	4,455	7,714
Install 480 V sta serv subst	ls	1	310.00	1,107
Install 480 v st serv aux & sw boards, pb & devices	ls	1	250.00	600.00
Install unit control boards	ls	1	315.00	500.00
F & I annunciation sys	ls	1	910.00	5,089
F & I aut tel & code call sys	ls	1	1,955	3,321
F & I grounding sys	ls	1	3,240	5,125
F & I lighting sys	ls	1	9,300	7,263
F & I electric clocks	ls	1	275	1,242
F & I crane trolley cond & supports	ls	1	395.00	1,928
F & I met conduit & fittings & boxes size A	kg	8,000	1.23	1.57
F & I met conduit & fittings & boxes size B	kg	12,000	0.97	1.25
F & I met conduit & fittings & boxes size C	kg	300	1.50	1.57
F & I non-metal conduit incl fittings	kg	250	1.87	2.35
F & I specal conduit boxes	kg	2,000	0.49	0.90
F & I cable trays & support	ls	1	2,120	12,000
F & I insul wire & cable size A	kg	1,200	2.47	11.95
F & I ins wire & cable size B	kg	5,500	1.65	2.25
F & I insul wire & cable size C	kg	2,500	2.62	1.30
Install 69 kv circuit breaker	ls	1	1,560	4,214
Install 69 kv disconnec switches	ls	1	935.00	4,142
F & I switchyard bases and accessories	ls	1	5,285	18,928
F & I switchyard & conduit size A	kg	8,000	1.00	0.86
F & I switchyard & conduit size B	kg	7,000	0.89	0.86
F & I intake and spillway transmission line	ls	1	9,675	6,078
F & I powerhouse elec shop equipment	ls	1	4,645	8,214
F & I powerhouse row water sys	ls	1	11,165	37,031
F & I powerhouse tr water sys	ls	1	6,915	7,232
F & I powerhouse lube & trans oil sys	ls	1	11,020	4,342
F & I powerhouse comp air sys	ls	1	5,135	2,885
F & I powerhouse carbon dioxide sys	ls	1	23,325	14,250
F & I powerhouse drain & unwatering sys	ls	1	14,285	7,660
F & I powerhouse air cond & ventil sys	ls	1	26,880	5,635
F & I powerhouse plumbing & san sys	ls	1	7,240	7,571
F & I powerhouse mach shop equip	ls	1	13,545	27,500
Add rolling	sm	75,000	0.039	0.028
F & I stl plate lagging	kg	1,000	0.25	0.55
Exc, impervious borrow area	cm	300,000	0.168	0.42
Furn common labor for generator install	hr	22,500	0.59	0.57

Architect: C. H. Biohm, Miami

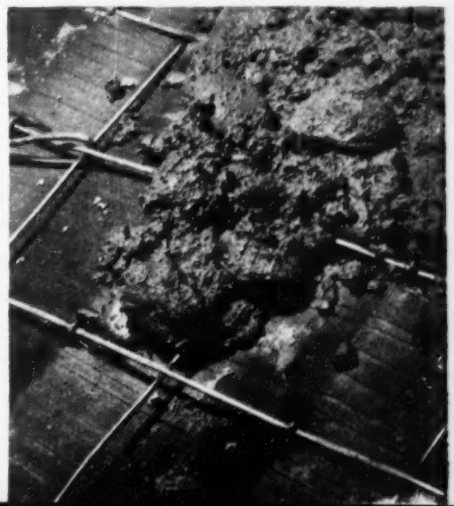
Miami's largest, most important new office building in 16 years uses **Steeltex Floor Lath**

The new steel and concrete Pan American Bank Building —the first major office building constructed in Miami since 1937—was designed for long life, low maintenance, and economy in construction. Each concrete deck including the roof was poured over thousands of square feet of durable, economical Steeltex Floor Lath—the modern, time and money-saving, galvanized steel wire concrete reinforcing which *carries its form on its back* (see note at right) and permits continuous work on the floor below.

Steeltex offers speed and economy because it can be installed rapidly. It insures strength, durability and safety because the galvanized welded wire mesh is properly embedded, and the slab is properly cured because the tough waterproofed backing retains the water, thus insuring the correct water-cement ratio. For detailed information about Steeltex Floor Lath, the combined form and reinforcing, see our catalog in Sweet's or write for catalog D.C. 133, Dept. ENR, Pittsburgh Steel Products Company, Grant Building, Pittsburgh 30, Pennsylvania.



Note, *in the cross section and closeup that the weight of the wet concrete forces the backing away, which permits the galvanized wire mesh to assume its proper position in the slab. Steeltex Floor Lath also performs two other functions. It permits work on the floor below while pouring is in progress and retains moisture to assist proper curing.*



Pittsburgh Steel Products Company

A Subsidiary of Pittsburgh Steel Company

Du Pont Explosives Help Speed Highway Project Through Narrow Canyon

Boulder Canyon Highway Relocation Project included two thorough cuts about 280 feet long by 120 feet and 95 feet deep respectively on the center line, in the narrowest and most crooked part of the canyon.

The contractor, Lowdermilk Brothers of Englewood, Colorado, used Du Pont Special® Gelatin 40% to speed production on this Colorado Bureau of Public Roads job.

Du Pont MS (millisecond) Delay Electric Blasting Caps in MS-25, -50, -75 and -100 periods were picked to give the best possible fragmentation and to hold backbreak to a minimum.

Results of shot fired with Du Pont Condenser Discharge Blasting Machine. These compact, lightweight machines fire up to 1200 holes and eliminate power shooting lines or motor generator sets.

Ask the Du Pont Explosives representative in your area for complete information about Du Pont Explosives, blasting supplies and accessories. He will be glad to help you. E. I. du Pont de Nemours & Co. (Inc.), Explosives Dept., Wilmington 98, Delaware.

DU PONT EXPLOSIVES

Blasting Supplies and Accessories

DU PONT

REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

The second of two articles on profits

What Are PROFITS Used For?

This is the second article on the role of profits in our economy. The first was addressed to the question: "How High are Profits?" The answer was found to be: not high when compared with previous years and the present investment in corporate facilities. This second article is addressed to the equally important question: "What do corporations do with their profits?"

In 1953 corporations will earn about $20 billion *after taxes*, if the recent rate of earnings is maintained throughout the year. These profits will be used (1) to expand and improve productive capacity through purchases of new plant and equipment, (2) to finance the operations involved in a growing volume of business and (3) to reward the people who have invested their money in American industry. Of the $20 billion, the corporations will pay about $9 billion to their stockholders as dividends. They will use the $11 billion that remains to purchase new plant and equipment and to increase their working capital.

This year corporations are increasing their plant, equipment and working capital by a total of approximately $32 billion. Of this amount, about $26 billion is for new plant and equipment. The remainder is for working capital. As this article will show in greater detail, about $21 billion of this will come from depreciation allowances and sales of new securities. The other $11 billion will come from retained profits.

It is impossible to trace exactly how each dollar of retained profits is spent. This money is mixed with other money that goes into the company treasury in the form of proceeds from loans, sale of securities and depreciation allowances. *However, it is a fact that by retaining $11 billion of their profits this year, corporations have provided $11 billion toward their total capital requirements, including the money needed for expanded and improved capital equipment.*

Profits Mean New Plants

This year American industry is engaged in a very large expansion of plant facilities. This will increase the industrial capacity of the nation by about 7 per cent. Since 1950, our capacity has been increased by about 12.5 per cent. And all of this expansion has been privately financed, even though about one-third of it was certified as necessary for national defense.

The expenditure during 1953 of $26

billion for new plant and equipment—an alltime record—imposes terrific financial responsibilities on our corporations. About one-half of the amount required will come from depreciation allowances. In general, these allowances are supposed to pay for the replacement of worn-out or obsolete equipment. Another $8 billion will be raised by corporations through new security issues and long-term mortgage loans. All together, depreciation allowances, security issues and long-term loans will provide about $21 billion. But this is still $5 billion short of the $26 billion needed for new plant and equipment this year. Thus, it is retained profits that spell the difference between expansion and standing still, between growth in the productive capacity of the economy and running downhill.

As plant facilities are expanded, corporations also need more working capital. A larger volume of business requires larger inventories, larger accounts receivable and larger amounts of ready cash to meet payrolls and bills for materials. The increase in these items during 1953 is estimated at $8.5 billion, of which about $2.5 billion will be supplied by short-term bank loans. The other $6 billion will come from retained profits. Thus, retained profits provide an essential $11 billion—$6 billion for working capital, $5 billion for new plant and equipment—to meet corporate financial requirements.

Incentive for Investment

The role of the profits that are paid to stockholders as dividends or to employees under profit-sharing plans is even more important than the role played by retained profits in providing plant, equipment and working capital. Dividend payments provide the main incentive for investment in the stocks of corporations. They are the reward for risks taken by investors. Dividends paid by corporations whose common stocks are listed on the New York Stock Exchange provide an average return of about 6.5% at present prices, and dividends on preferred stocks average about 4.5% return. Dividends are distributed among 6.5 million stockholders. Also, it is estimated that 3 million employees now are covered by profit-sharing plans. These plans increase the incentives of both production workers and managers to work harder and more efficiently.

Thus, more than 9 million Americans have a *direct* financial stake in corporate profits through ownership of stock or participation in profit-sharing plans. But *all* Americans share indirectly in the rewards of a successful business year. Investment of a major part of 1953 profits in new plants and equipment means more employment opportunities and better working conditions for labor. For the nation, it means new industrial capacity that is essential both for national defense and to produce more and better goods for a rising standard of living.

Corporate profits after taxes represent about 6% of the nation's total income. But the job they do to stimulate investment and to finance industrial expansion and improvement is more far-reaching and more essential to the prosperity and well-being of the American people than would be suggested by that small figure.

McGraw-Hill Publishing Company, Inc.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

STREETS AND ROADS

November 24, December 8 Massachusetts

BUILDINGS

LOW BIDS AND CONTRACTS

Construction Realty Co., DiSandro Bros., 106 Langdon St., Providence, R. I. Separate Contracts. **$700,000.** 79 RESIDENCES and 2-car Garages, Covessett Ave., WARWICK, R. I. CD 11/11.

City, School Dpt., 32 Franklin St., Worcester, Mass. rejected bids Oct. 23, Tatnuck Elementary School addn., alterations, Pleasant St. at Copperfield Rd., WORCESTER, MASS. City, School Dpt., 32 Franklin St., Worcester, Mass. LB **$335,787.** CD 10/30, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

November 24 Maryland — November 30 New Jersey

December 2 Delaware — December 3 New York

STREETS AND ROADS

November 24 Maryland — December 2 Delaware

December 3 New York

BIDS ASKED—BUILDINGS

▲ **N. Y., Babylon**—SCHOOL—B.A. 11/24—Bd. Educ., Union Free School Dist. 1, Babylon, grade school. $1,000,000. CD 1/21.

† **D. C., Wash.**—BUILDING—B.A. 11/25—Naval Research Laboratory, Wash., D. C., frame, structural steel, Antenna Pattern Plotter House, Bldg. 56, at Naval Research Laboratory, NOY 79906.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Associated Constructors, 347 Washington St., Orange, N. J., CA **$189,557**, flood relief proj., tunnel and culvert first phase in Totowa Sect. of North Paterson, PATERSON, N. J. Bd. P. Wks., City Hall, Paterson, N. J. Bids Oct. 20. CD 10/16.

DELAWARE—State Hy. Dpt., Dover,

H. C. Eastburn & Son, Newark, Del., LB **$243,551**, Contr. 1197, Harvey Rd. Bridge and approaches, New Castle Co. Bids Nov. 4. CD 10/19.

BUILDINGS

LOW BIDS AND CONTRACTS

John Oechslin, Commack Rd., Commack, N. Y., CA **$428,846.** Scudder Ave. and Hawkins Rd. SCHOOL, COPIAGUE, N. Y. Bd. Educ., Union Free School Dist. 5, Copiague, N. Y. Bids Oct. 15. CD 10/1.

▲ **John W. Ryan Co.**, 369 Lexington Ave., New York 17, N. Y. CA Est. **$3,000,000.** National HEADQUARTERS BLDG. and SUPPLY SERVICES CENTER, 40-acre tract, Rte. 1, No. Brunswick Twp., NEW BRUNSWICK, N. J. Boy Scouts of America, 2 Park Ave., New York 16, N. Y. Chapman, Evans & Delahanty, 50 Broadway, New York, N. Y., archts.

▲ **Navarro Corp.**, 6219 Broad St., Pittsburgh, Pa., CA **$1,000,000.** 1 and 2 story, 45x705 ft., brick, block, steel inbound and outbound TERMINAL, 1st and Try Sts., PITTSBURGH, PA. Baltimore & Ohio R.R. Co., A. C. Clark, ch. engr., Baltimore and Charles Sts., Baltimore, Md. CD 9/25/51.

Paul Rice Eng. Co., 2000 Vine St., Baltimore, Md. LB **$820,000.** central HEATING PLANT for Lafayette and Flaghouse Court Projs. and maintenance bldg.;

Lloyd E. Mitchell, Inc., 4650 Reisterstown Rd., Baltimore, Md. LB **$52,366.** steam distr. sys. for Lafayette and Flaghouse Court Projs., BALTIMORE, MD. Baltimore Housing Auth., 709 E. Eager St., Baltimore, Md. Bids Nov. 15. CD 10/20.

▲ **Karl Corby Constr. Co.**, 908 W. 20 St. N.W., Wash., D. C., CA Est. **$1,000,000.** 125 units, 10 buildings, 3 story APARTMENTS, Army Map Service Access Rd. and Sangamore Rd., Brookmont, WASH., D. C. W. L. and A. N. Miller Development Co., 4872 Massachusetts Ave. N.W., Wash., D. C.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

December 11 Tennessee — December 22 Florida

▲ **Louisiana**—TUNNEL—B.A. 12/16—State Hy. Dpt., Highway Office Bldg., Baton Rouge, Belle Chasse Tunnel, Incl. ramps, ventilation bldgs., approach and serviced roads and appurtenances under Algiers Cut-Off Canal on State Rte. No. 31, S.P. 62-02-22, Plaquemines Parish. Est. $2,500,000. Plans deposit $100. Palmer & Baker, Inc., P.O. Box 346, Mobile, Ala., consult. engr.

BIDS ASKED—BUILDINGS

La., Jackson—PATIENT—B.A. 12/1—State Building Auth., State Capitol, Baton Rouge, patient bldg. at East Louisiana State Hospital. $500,000. Plans deposit $35.

Miss., Hattiesburg—FINE ARTS—B.A. 12/15—Mississippi Southern College, Hattiesburg, fine arts bldg. $500,000. Landry & Matthes, 214 W. Pine St., archts. CD 3/27/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Mechanics Contr. Co., 1325 Main St., Columbus, S. C. LB **$114,964**, recreation bldg.;

C. G. Shockley Constr. Co., 2020 Blanding St., Columbia, S. C., LB **$142,954**, recreation bldg. and swimming pool, wading pool, COLUMBIA, S. C. Bd. Trustees, Epworth Childrens Home, Sumter Hy., Columbia, S. C. Bids Nov. 3 CD 10/26.

FLORIDA—State Road Dpt., Tallahassee,

Cleary Bros. Constr. Co., Box 6815, West Palm Beach, Fla., CA **$737,553**, constr. 1,880.5 ft. concrete deck girder bridge on 18 in. concrete piling, incl. 220-ft. electrically operated plate girder swing span, all 24 ft. wide with 3 ft. sidewalk on each side, control house, treated timber fender sys., navigation lights, electrical equip. and approach slabs, State Rd. No. 3, at Eau Gallie bridge across Indian River (Intra-Coastal Waterway), Job No. 7012-104, Brevard Co. Bids Oct. 27. CD 11/4, under LB.

▲ **ALABAMA**—State Hy. Dpt., Montgomery,

Vandigriff Constr. Co., Box 1110, Montgomery, Ala. LB **$602,743.** bit. tr., plant mix, from Line Creek toward Tuskegee 13.756 mi. F 93 (3), Macon Co.;

S. T. Shepherd Constr. Co., Powderly P.O., Birmingham, Ala. LB **$86,768.** bit. tr. and bridge 5.038 mi. county road from Fruitdale toward Chatom, SACP-6118 A, Washington Co.;

J. R. Bryant Contg. Co., 121 Moulton St., Montgomery, Ala. LB **$85,041.** base, bit. tr. 9.174 mi. road from Pickensville to Mississippi State Line, FA-S-145 (2), Pickens Co.; LB **$67,738**, base, bit. tr. 9.019 mi. on road from Fairfield to Andalusia, FA-S-569 (3), Covington Co.;

Hewitt Contg. Co., Box 1372, Columbus, Ga. LB **$1,051,987.** grading, drainage, 7.699 mi., I.F.I. 164 (4), St. Clair Co.;

McDowell & McDowell, Box 1144, Nashville, Tenn. LB **$1,195,883.** grading, bit. tr., plant mix 6.844 mi. Boaz-Attalla Rd., F 165 (2), Etowah Co.; LB **$437,983,** bit. tr. 5.685 mi. U.S. 78 from Buttahatchee River thru Hamilton toward Mississippi State Line, F 173 (5), Marion Co.; LB **$1,786,178,** bit. tr., plant-mix 13.346 mi. Bucksville-Bessemer Rd., F.I. 180 (4) and 185 (8), Jefferson and Tuscaloosa Counties; LB **$144,896,** bit. tr., 5.368 mi. road between Sprott and Oakmulgee, FA-S 508 (2) Perry Co.;

Newell Brothers Constr. Co., Hope Hull, Ala. LB **$94,429.** grading, drainage 8.298 mi. from Linden to Jefferson SACP-677-B, Marengo Co.;

L. J. Cousins, 56 S. Lewis St., Montgomery, Ala. LB **$127,850.** bit. tr. 9.031 mi. McIntosh-Sims Chapel Rd., SACP-679-B, Washington Co.;

Bennett Constr. Co., Box 944, Montgomery, Ala. LB **$84,740.** grading, drainage, base 6.172 mi., FA-S-470 (2), Elmore Co. Bids Oct. 23. CD 9/16.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

Harry O. Wyse, Versailles Rd., Lexington, Ky. and

Highland Constr. Co. Inc., Lexington, Ky. LB **$1,298,573.** grade, drain, surf. 2.708 mi. Inner Belt Line, U 528 (6), SP 56-898, Jefferson Co.;

Lyons & Breeden, Rogersville, Tenn. LB **$187,498.** traffic bound limestone using steel piles 0.727 mi. Princeton-Providence Rd., S 391 (4), SP 17-302 and 54-400, Caldwell and Hopkins Counties;

Saltsman Constr. Co., Bardstown, Ky. LB **$77,368.** bit. road mix Class C-1 limestone aggregate 0.369 mi. Grayson-Carter City-Vanceburg Rd., S 317 (2), SP 317 (2), SP 22-208, Carter Co.;

Winston Ford Co., Prestonsburg, Ky. LB **$115,660.** reconstr., traffic bound limestone 3.439 mi. Leatherwood-Caney Creek Rd., SP 13-627, Breathitt Co.;

John Treitz & Sons, 741 Franklin St., Louisville, Ky. LB **$111,696.** reconstr., traffic bound limestone 2.504 mi. County Belt Line, RS 56-468, Jefferson Co.;

Lovell & Hart Constr. Co., 708 Henry Clay Blvd., Lexington, Ky. LB **$99,874.** local bank or creek grav. 2.195 mi. Bradfordsville-Gravel Switch Rd., S 169 (2), SP 78-262, Marion Co. Bids Nov. 6. CD 10/21.

BUILDINGS

LOW BIDS AND CONTRACTS

J. A. Jones Constr. Co., 133 Ellis St. N. E., Atlanta, Ga. CA **$409,600.** CHURCH, ATLANTA, GA. Druid Hills Methodist Church, 675 Seminole Ave. N. E., Atlanta, Ga. Bids Nov. 4. CD 10/23.

M. T. Reed Constr. Co., P.O. Box 1066, Jackson, Miss. LB, **$522,333.** HOSPITAL at King's Daughters Hospital, YAZOO CITY, MISS. Bd. Suprvs., Yazoo Co., Yazoo Co., Miss. Bids Nov. 2. CD 10/16.

▲ **Sanford Co.**, c/o Irving D. Robinson, archt., 4300 Euclid St., Cleveland, O. CA Est. **$3,000,000.** 30-store SHOPPING CENTER, parking facilities on 41 acre tract, Monmouth St. near 16 St., NEWPORT, KY. Newport Shopping Center, Inc., c/o M. D. Mayerson, Provident Bank Bldg., Cincinnati, O. Awarded Nov. 9. CD 2/10.

Owens Bros., c/o Austin Mann, 713 Pike St., Covington, Ky. Owner Builds. **$375,000.** twenty-two 1 and 1½ story, bsmnt., brick HOMES, James Ave., ERLANGER, KY. James Viox Jr., c/o owner, engr. Awarded Nov. 9.

▲† **Tennessee**—Tennessee Valley Auth., New Sprankle Bldg., Knoxville, Tenn., awarded contracts for Kingston Steam Plant, Tenn., Johnsonville Steam Plant, Ky., Colbert Steam Plant, Ala., John Sevier Steam Plant, Tenn., Gallatin Steam Plant, Tenn. and miscellaneous. Grand total **$15,181,377.**

KINGSTON STEAM PLANT, TENN.

Henry Pratt Co., 2222 S. Halsted St., Chicago, Ill. CA **$44,210**, butterfly valves, supplement to original contract;

Combustion Engr., Inc., 1032 W. Main St., Chattanooga, Tenn., CA **$3,132,810**, generating unit;

National Valve & Mfg. Co., 3131 Liberty St., Pittsburgh, 1, Pa., CA **$112,334**, principal piping sys.;

Westinghouse Electric Corp., Readville, CA **$201,000**, draft fans, supplement to original contract;

Westinghouse Electric Corp., P.O. Box 868, Pittsburgh 30, Pa., CA **$536,155**, power switchboards, supplement to original contract;

American Blower Corp., Tireman Ave. and Roselawn St., Detroit 32, Mich. CA **$45,990**, supplement to original contract;

Connery Constr. Co., 3900 N. 2 St., Phila., Pa., CA **$89,500**, air and gas ducts;

Fairbanks, Morse & Co., 49 Central Ave., Cincinnati 2, O., CA **$92,190**, circulating water pumps;

Westinghouse Electric Corp., Essington, Pa., CA **$313,200**, steam condensing unit, supplement to original contract;

Worthington Corp., 426 Worthington Ave., Harrison, N. J., CA **$58,000**, feedwater heater.

JOHNSONVILLE STEAM PLANT, KY.

Chicago Bridge & Iron Co., 1558 N. 50 St., Birmingham, 1, Ala., CA **$108,500**, erection of extens. of steel stacks.

COLBERT STEAM PLANT, ALA.

Badham Insulation Co., Inc., 1909 1st Ave. S., Birmingham, Ala., CA **$448,816**, insulation manufactured at various points in Pennsylvania;

Newman Bros., Inc., 674 W. 4 St., Cincinnati, O., CA **$128,217**, aluminum frame assemblies.

JOHN SEVIER STEAM PLANT, TENN.

Benjamin F. Shaw Co., Lombard and Lounsbery Sts., Wilmington, Del., CA **$2,000,000**, principal piping systems;

Combustion Eng., Inc., 1032 W. Main St., Chattanooga, Tenn., CA **$3,132,810**, generating equip.;

W. S. Rockwell Co., 214 Eliot St., Fairfield, Conn., CA **$39,960**, valves;

Westinghouse Electric Corp., Readville, Mass. CA **$201,000**, draft fans, supplement to original contract;

American Blower Corp., Tireman Ave. and Roselawn St. Detroit 32, Mich., CA **$45,990**, fly-ash collections, supplement to original order;

Allis Chalmers Mfg. Co., 864 S. 70 St., Milwaukee 1, Wis., CA **$340,000**, condensing unit;

Elliott Co., 900 N. 4 St., Jeannette, Pa., CA **$58,629**, feedwater heaters;

GALLATIN STEAM PLANT, TENN.

Hermitage Portland Cement Co., American Trust Bldg., Nashville, Tenn., CA **$474,375**, cement.

MISCELLANEOUS

Line Material Co., 700 W. Michigan Ave., Milwaukee, Wis., CA **$538,959**, capacitor equip.;

Westinghouse Electric Corp., P.O. Box 868, Pittsburgh 30, Pa., CA **$127,033**, stator winding repairs; CA **$760,568**, capacitor equip; CA **$144,239**, oil circuit breakers;

Westinghouse Electric Corp., Sharon, Pa., CA **$1,050,264**, transformers;

Allied Structural Steel Companies, 20 N. Wacker Dr., Chicago, Ill., CA **$164,214**, structural steel;

Wagner Electric Corp., 6410 Plymouth Ave., St. Louis 14, Mo., CA **$21,213**, transformer;

Research Corp., Radel Ave., Bound Brook, N. J. CA **$165,044**, dust collection equip.;

Kaiser Aluminum & Chemical Sales, Inc., Heath, O., CA **$550,365**, conductor cable;

Kuhlman Electric Co., 2700 Garfield Blvd., Bay City, Mich., CA **$52,792**, transformers.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

November 24 Michigan

STREETS AND ROADS

November 24 Michigan

BIDS ASKED—BUILDINGS

▲ **Ill., Chicago**—PROFESSIONAL SERVICE, etc.—B.A. 12/8—Michael Reese Hospital, Ellis Ave. and 31 Sts., professional service bldg. and pavillion. $3,750,000. Loebl, Schlossman & Bennett, 430 N. Michigan Ave., Zone 11, archts. CD 11/4.

Ill., Chicago—FACTORY—Bids Asked—Dowst Mfg. Co., 4537 W. Fulton St., 90,000 sq. ft. factory addn., Pulaski Rd. and Ontario St. $650,000. A. Epstein & Sons, Inc., 2011 Pershing Rd., Zone 9, archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Santucci Constr. Co.**, 5025 Church St., Skokie, Ill. LB **$297,950, Div. A;** LB **$238,295, Div. B;** LB **$917,582, Div. E;** LB **$506,929, Div. F;** LB **$227,115, Div. G;** LB **$338,820, Div. H;**

Kenny Constr. Co., 3220 Oakton St., Skokie, Ill., and **S. J. Groves & Son**, 1164 W. Reynolds St., Springfield, Ill., LB **$493,025, Div. C;**

The Business is there...

New Construction jobs you want

But if you don't know where,

you can't get your share

Dodge Reports will tell you

where your opportunities are... everyday—anywhere east of the Rocky Mountains. Get "How to Use" book free. Write Dept. E. 5311

DODGE REPORTS

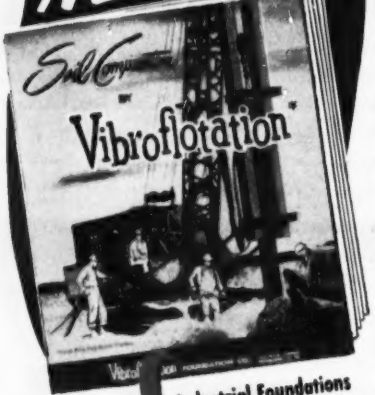
119 W. 40th St., New York 18, N. Y.

Timely, accurate, comprehensive construction news service

THE FIRST STEP IN EVERY SALE

F.W. DODGE CORPORATION

Before you plan Foundations send for this **NEW Bulletin**



INVESTIGATE FOUNDATION SAVINGS

Industrial Foundations
Airports • Highways
Earth Dams • Levees
Deep Foundations
Concrete Dams

To receive specific information, costs, etc. send us: available soil analysis data, general description of project, any loadings involved, etc.

VIBROFLOTATION FOUNDATION CO.

575 Sixth Ave. · Pittsburgh 19, Pa.

ATlantic 1-2500

T. F. Cloghessy, 745 Logan St., Hammond, Ill., LB $101,220, Div. D. of East Side Intercepting Sewerage Sys. and Stevens Creek Intercepting Sewerage Sys., DECATUR, ILL. Sanitary Dist. of Decatur, Citizens Bldg., Decatur, Ill. Bids Nov. 2. CD 9/21.

Witter Gaddis Corp., 524 Douglas St., Hammond, Ind. and **Russell P. Davis**, Lafayette, Ind., CA $495,000, est. $500,000 sewage treatment plant and sewerage sys. FLORA, IND. Town Bd., Flora, Ind. Bids Aug. 24, awarded Oct. 27. CD 8/5.

▲ **John J. Keeley Contg. Co.**, 2030 State St., East St. Louis, Ill., CA $637,872, Sect. 1A, main trunk sewer in Ohio Ave., 24 to 34 Sts.;

Clinton Hursey Constr. Co., 1101 Missouri Ave., East St. Louis, Ill., CA $406,603, Sect. 3, sanitary lateral sewers, EAST ST. LOUIS, ILL. City, Alvin G. Field, mayor, City Hall, East St. Louis, Ill. Bids Oct. 21. CD 10/6.

† **Pearson Constr. Co.**, Benton Harbor, Mich. CA $480,259, barracks, Alpena County Airport, ALPENA, MICH. U. S. Eng., 1900 Cadillac Tower, Detroit, Mich. Bids Nov. 12. CD 10/29.

BUILDINGS

LOW BIDS AND CONTRACTS

Loraine Constr. Co., 527 W. 2 St., Dayton, O. Owner Builds. $400,000, 50-room MOTEL with swimming pool and lounge, Reading Rd., south of Galbraith Rd., CINCINNATI, O. Tourist Villa's, Inc., Reading Rd. near Galbraith Rd. CD 11/5.

Wm. Passalaqua, 16828 Kinsman Rd., Shaker Heights 20, O. Owner Builds. $850,000. 4 story masonry MEDICAL bldg., 10605 Chester Ave., CLEVELAND, O. Samuel K. Popkins, 16828 Kinsman Rd., Cleveland, O., engr.-archt.

James Anderson Co., Muncie, Ind., LB $546,369. Elementary SCHOOL, ALEXANDRIA, IND. School Bd. and Alexandria Holding Corp., Alexandria, Ind. CD 4/2.

General Motors Corp., Guide Lamp Div., C. A. Michel, gen. mgr., Pendleton Ave. and 25 St., Anderson, Ind. Owner Builds. $750,000, two approx. 200,000 sq. ft. brick, steel, stone PLANT addns., ANDERSON, IND.

Kurtz Building Co., Box 244, Ann Arbor, Mich. CA $426,496. general contract 2 story, brick, steel, concrete Slawson Junior High SCHOOL addn., alterations, ANN ARBOR, MICH. City, D. C. Douglas, secy., Bd. Educ., Ann Arbor, Mich. CD 11/5, under LB.

▲ **Southwestern Engineering Co.**, 4800 S. Santa Fe St., Vernon, Calif. CA Est. $3,000,000. development and installing, catalytic polymerization unit at REFINERY, BAY CITY, MICH. Bay Refining Co., 1201 Second National Bank Bldg., Saginaw, Mich. (Correction-location). CD 11/9, under Mich., Saginaw.

▲ **Schurrer Constr. Co.**, Pontiac, Mich. CA Est. $1,000,000. brick, steel, concrete COLLEGE structure, Ten Mile Rd. and Northwestern, Southfield, DETROIT, MICH. Lawrence Institute of Technology, Dr. E. George Lawrence, pres., 15100 Woodward Ave., Detroit, Mich. CD 10/9.

WEST OF MISSISSIPPI

BIDS ASKED—BUILDINGS

▲ **Mo., Columbia**—TEACHING HOSPITAL—B.A. 12/9—Curators of University of Missouri, Leslie Cowan, secy., Jesse Hall, Columbia, 8 story, brick, steel, rein.-con. teaching hospital and medical and surgical school. $7,500,000. Jamieson, Spearl, Hammond & Grolock, 1696 Arcade Bldg., St. Louis, Zone 1, archts. CD 2/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

General American Transportation Corp., 1st Natl. Bldg., Tulsa, Okla., CA $575,000, 922,000 bbl. capacity steel tank farm, near West Memphis, Ark.; CA $95,500, 100,000 bbl. capacity steel tank farm, at Conway, Ark.; CA $105,500, 100,000 bbl. capacity steel tank farm, at Fort Smith, Ark.; CA $165,000, 160,000 bbl. capacity steel tank farm, Allen, Okla., ARKANSAS and OKLAHOMA. Sunray Oil Corp. & Assocs., 1st. Natl. Bldg., Tulsa, Okla. (Oklahoma-Mississippi River Products Pipe Line, Inc., c/o Sunray, organized to build and operate project.) Grand Total $941,000. Ford, Bacon & Davis, Inc., 39 Broadway, New York, N. Y., engr. CD 7/8.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Standard Constr. Co.**, Builders Exchange, Minneapolis, Minn., CA, $1,263,054, general constr. PATIENTS BLDG. at Iowa State Hospital, INDEPENDENCE, IA. State Bd. Control, Des Moines, Ia. Bids Oct. 20. CD 10/28, under LB.

T. L. Mills, c/o Tower Courts Hotel, Dallas, Tex. CA Approx. $500,000. masonry HOTEL addn., DALLAS, TEX. Tower Hotel Courts, Inc., 10108 Harry Hines Blvd., Dallas, Tex. CD 11/10.

▲ **Tears Engineers**, 4617 Cole Ave., Dallas, Tex. Own Forces. Approx. $1,000,000. 1 story LABORATORY and OFFICE, IRVING, TEX. Owner is engr. on proj.

Swigert Constr. Co., 1501 N. 4 St., Waco, Tex. CA $654,145, men's DORMITORY, WACO, TEX. Baylor University, Waco, Tex. Bids Oct. 30. CD 11/6, under LB.

Jones & Hezlep, 1 Galapago, Denver, Colo., LB $588,474, general contract 2 story, brick Wilberforce Whiteman Grade SCHOOL, DENVER, COLO. School Dist. No. 1, City & County of Denver, 414 14 St., Denver, Colo. Bids Nov. 4. CD 10/12.

▲† **Western-Knapp Eng. Div. Western Machinery Co.**, 760 Folsom St., San Francisco, Calif. CA $3,000,000. PLANT to treat uranium bearing ore, SHIPROCK, N. M. Navajo Uranium Div., Kerr-McGee Oil Industries, Inc., Kerr-McGee Bldg., Oklahoma City, Okla. CD 8/28, under CA.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
November 27, December 3 California

† **Calif., Edwards Air Force Base**—VEHICLE FACILITY—B.A. 12/4—U. S. Eng., 751 S. Figueroa St., Los Angeles, Zone 17, vehicle maintenance facility, ENG 04-353-54-26. $500,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **CALIFORNIA**—State Div. Hys., **P. Wks. Bldg., Sacramento,**

John Delphia, Box 313, Patterson, Calif., LB $480,335, grading, surf., rein.-con. bridge 5.2 mi. across Hans Grieve Canyon, between Lone Pine Station and Hot Springs Canyon, Fresno, Co.;

Harms Bros., 5261 Stockton Blvd., Sacramento, Calif. LB $570,614, grade surf. 2.5 mi. near King Solomon Mine, Mariposa Co.;

M. J. Ruddy & Son, 922 J St., Modesto, Calif., LB $131,567, grade, surf., 0.8 mi. bridge between Sullivan Rd. and Gustine, Merced Co.;

Valley Paving & Constr. Co.,—P.O. Box 6, Pismo Beach, Calif., LB $196,922, grade, surf., 1 rein.-con. slab bridge 2.4 mi. between Palo Prieto and Rt. 125, San Luis Obispo Co. Bids Nov. 4. CD 10/12.

BUILDINGS

LOW BIDS AND CONTRACTS

† **D. D. Castleberry**, 2501 W. Bethany Home Rd., Phoenix, Ariz., CA $456,720, elementary SCHOOL, Fort Apache Indiana Reservation, FORT APACHE, ARIZ. Bureau Indian Affairs, Dpt. Interior, Phoenix, Ariz. Lescher & Mahoney, Title & Trust Bldg., Phoenix, Ariz., archts. Awarded Nov. 7.

† **L. H. Hoffman**, 715 S.W. Columbia St., Portland, Ore. CA $545,100. eight 1 story steel BUILDINGS at Hanford Works, RICHLAND, WASH. Atomic Energy Comn., Richland, Wash. CD 10/23, under LB.

▲ **Bennett-Campbell, Inc.**, Seaboard Bldg., Seattle, Wash. CA $1,549,274. 4 story Bon Marche Department STORE addn., SEATTLE, WASH. Allied Stores, Inc., 401 Fifth Ave., New York, N. Y. CD 7/2, under LB.

▲ **Wm. P. Neil Co.**, 4814 Loma Vista Ave., Los Angeles, Calif., CA $1,000,000. WAREHOUSE, SHIPPING PLANT, 2424 S. Saybrook Blvd., LOS ANGELES, CALIF. Premier Autoware Co., 4415 Euclid Ave., Cleveland 3, O.

Anderson Constr. Co., 115 S. 9 St., Tacoma, Wash. CA $847,910. 1 story, 113x145 ft., 75x185 ft., 71x76 ft., 160x186 ft., 19x75 ft., two 75x127 ft., rein.-con. Junior High SCHOOL bldgs., RENTON, WASH. School Dist. 403, Renton, Wash. CD 11/5, under LB.

Campbell Constr. Co., 800 R St., Sacramento, Calif. LB $418,571. BANK, SACRAMENTO, CALIF. Anglo California National Bank, c/o Harry J. Devine, archt., 1012 "J" St., Sacramento, Calif. Bids Nov. 3. CD 10/16.

California Builders Co., Inc., 5525 Marshall St., Oakland, Calif., CA $841,316, HOSPITAL SERVICE BLDG. for Fairmont Hospital, SAN LEANDRO, CALIF. Bd. Supervs. Alameda Co. Court House, Oakland, Calif. Bids Nov. 3. CD 10/16.

▲ **Morley Building Co.**, 9304 Santa Monica Blvd., Beverly Hills, Calif., LB $1,075,000, San Marino HIGH SCHOOL addns., SAN MARINO, CALIF. San Marino High School Dist., 1700 Huntington Dr., San Marino, Calif. Bids Nov. 5. CD 10/16.

CANADA

BUILDINGS

LOW BIDS AND CONTRACTS

Max Wintrobe, c/o Selkirk Hotel, Edmonton, Alta. CA Est. $500,000. concrete, steel, brick HOTEL, south-central area of EDMONTON, ALTA. Park Hotel Ltd., c/o Selkirk Hotel, Edmonton, Alta. CD 5/18.

G. H. Wheaton & Co., Nanaimo, B. C. CA $500,000. department STORE, Gordon St., NANAIMO, B. C. Simpson Sears Ltd., 176 Yonge St., Toronto, Ont. CD 6/1.

Bird Constr. Co. Ltd., Sargent and Erin Sts., Winnipeg, Man. CA Est. $400,000. concrete, steel, brick WAREHOUSE, Madison Ave., WINNIPEG, MAN. Goodyear Tire & Rubber Co. of Canada Ltd., 97 Higgins Ave., Winnipeg, Man. Moody & Moore, 295 Broadway, Winnipeg, Man., archts.

Hughes Constr. Co. Ltd., 365 Rogers Rd., Toronto, Ont. CA $400,000. 1 story, 226x236 ft., brick, PLANT addn., TORONTO, ONT. Coca-Cola Ltd., 90 Broadview Ave., Toronto, Ont. Mathers & Haldenby, 15 S. Mary St., Toronto, Ont., archts. Awarded Nov. 2.

S. D. Gameroff, 1069 Notre Dame St., Lachine, Que. Owner Builds. $750,000. SHOPPING CENTER, St. Joseph St. and 45 Ave., Dixie, LACHINE, QUE.

▲ **Hubert White**, 4525 Mayfair Ave., Montreal, Que. Owner Builds. $2,100,000. 200-300 HOUSES near Montreal-New York Rd., LAPRAIRIE, QUE.

(Proposal Advertisements see pp. 146 to 148)

Here's the Answer when you want

1. HIGH DENSITY SOIL COMPACTION!
2. MAXIMUM OUTPUT!

Says JACK PRINCE

WESTWAY EXCAVATING CO.
West Los Angeles, California

"BARCO'S PERFORMANCE is remarkable!" writes Jack Prince, Owner of Westway Excavating Co. in California. "We used the Rammer on two engineered fills recently and got maximum results for both density and volume. The material was decomposed granite with a slight clay content. Our requirements were for 125 pounds per cubic foot, dry density. That is real compaction! We compared the Rammer with two other tampers and were really amazed at how much more material the Barco handled.

"Since people in heavy construction have become aware of the necessity for good compaction on all subgrades, it certainly behooves any contractor to check the output of the Barco Rammer."

If you are not already using the Barco Rammer for soil compaction work, find out about it today! *Worldwide Sales and Service.* BARCO MANUFACTURING COMPANY, 514M Hough St., Barrington, Illinois. *(Near Chicago)*

Ask for a free copy of this bulletin, "COST DATA FOR SOIL COMPACTION"

BARCO

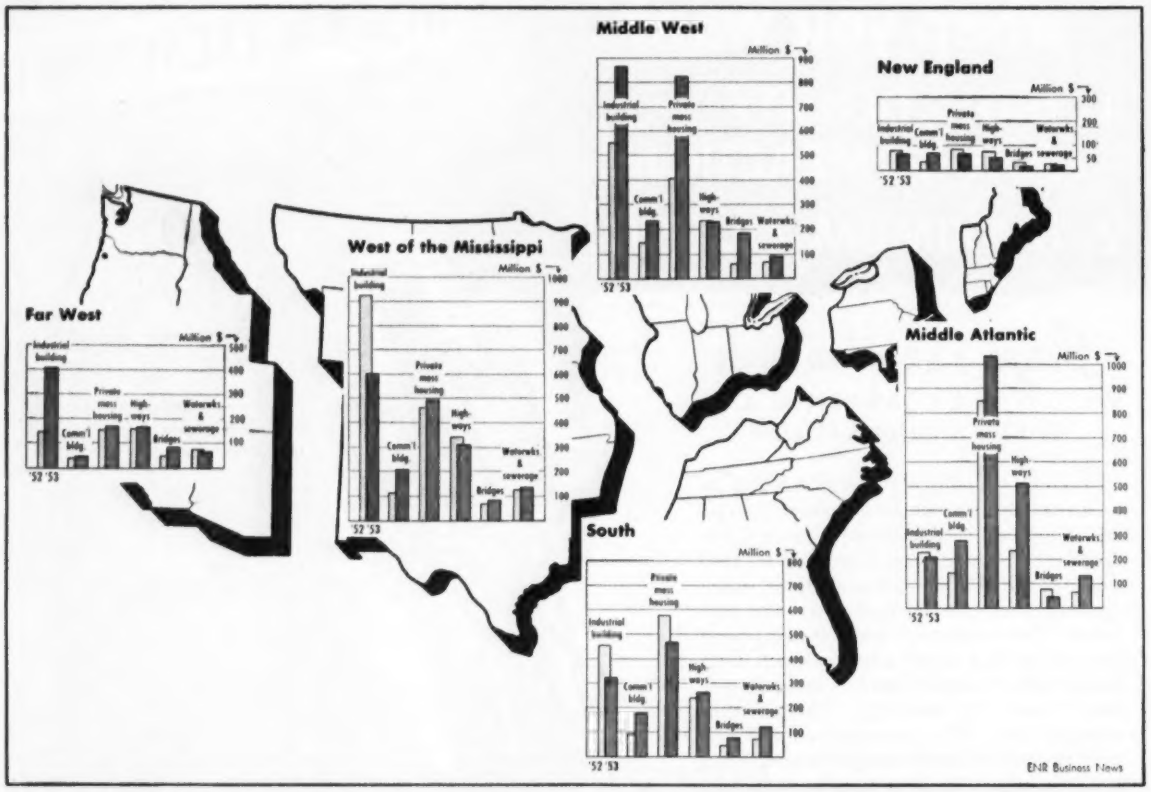
"Pegson" Gasoline

RAMMER

For Soil Compaction Close to Walls, Culverts and Abutments — in Trenches, Ditches

- SELF-CONTAINED
- PORTABLE
- ONE MAN OPERATION
- FASTER COMPACTION
- BETTER COMPACTION
- LOWER INITIAL COST
- LOW OPERATING COST
- EASY TO USE, SAFE!

FREE ENTERPRISE — THE CORNERSTONE OF AMERICAN PROSPERITY



Across the U.S.—compared by regions, contract awards show ups and downs as compared with figures reported for these sections last year

Regional pattern of awards shows wide ranges in volume

As might be expected, this year's contract awards have varied widely among the various regions of the U. S., as compared with 1952. The chart (above) compares awards in key categories for the first 10 months of this year with the corresponding 1952 period. The table (p. 143) shows the overall pattern by regions.

For the entire U. S., contract awards reported by ENGINEERING NEWS-RECORD and the CONSTRUCTION DAILY were $12,866 million, 6% below the total for the similar period last year and the second highest such period on record.

This pattern is followed very unevenly in the six regions. The Middle Atlantic is up 32%, and the Far West 4%, while the other four regions are down anywhere from 4% to 32%. Looking at private work, the only two regions to decline are the South and the West-of-Mississippi area. And these are down only slightly. There are huge percentage gains in private work in the Far West and the Middle West. For the entire U. S., private awards are up 24% to a record high.

In the state and municipal field, up 20% for the 10-month period and also at a record high, the regional range varies somewhat less widely. New England is down 15%, West-of-Mississippi region is down 5%, and the Far West down 1%. The other three areas are up anywhere from 23% to 60%. Every region, as might be expected, felt the impact of the decline in federal work. The South and Middle West suffered most because in 1952 they had the bulk of the big Atomic Energy Commission contracts.

Let's look at each region in detail:

• **New England**—Private work is up, public work down. There has been a big gain in commercial building, which totals $70 million. That's twice the 1952 volume. Private unclassified—largely pipelines—has jumped 277% to $49 million in 1953. Industrial building is off 12%, housing down 19%.

The only type of public work that has gained this year is waterworks, up 17% to $7 million. Earthwork and waterways are about the same as last year. Highways are down 31% to $51 million, and bridges are off 48% to $16 million.

• **Middle Atlantic**—This region has the biggest increase in state and municipal work. Private construction is also well ahead of 1952, while federal volume is down least in this region.

In the private field, commercial building is 93% higher than last year, with a total of $276 million. Private mass housing is up 22% with $1,034 million in awards. Industrial building is off 9% from last year, and totals $204 million. The big drop—29%—is in the very small category of unclassified work.

Public works are up sharply in all categories except housing. The big gains have been in highways, up 117% to $512 million; bridges, up 90% to $146 million; and sewerage, up 121% to $104 million.

• **South**—State and municipal construction is up, but federal work is off sharply and private volume has slipped a little. In public works, the gains have been in sewerage, up 83% to $73 million; bridges, up 65% to $76 million; waterworks, up 47% to $50 million; and highways, up 11% to $261 million. Other types have dropped sharply, due primarily to federal cutbacks.

Commercial building and unclassified are the only types of private work to show gains. Commercial volume is up 89% to $174 million, while unclassified jumped 116% to $216 million. The South, which held third place in industrial awards in 1951 and 1952, has now dropped to fourth. Private mass housing awards are down 20% to $465 million. The South and New England are the only two regions where private housing awards are running below last year.

• **Middle West**—Private work and state and municipal volume are up sharply, while federal awards have dropped way under last year.

All types of private construction show very large gains. Industrial and commercial building are both up 58%, with totals of $866 million and $236 million, respectively. Housing awards are 102% ahead of 1952, with a total of $822 million. Unclassified has also climbed by 239% to $112 million.

In public works, bridges jumped 212%, while sewerage rose 66%. Public housing is up 14% to $50 million—the only region where public housing has gained this year. Highway awards are about even with the figure for last year, reaching a total of $233 million.

• **West-of-the-Mississippi**—Both private and public construction are off this year. Declines in state and municipal work and in private work contracts are small, 5% and 6%, respectively. But federal work dropped down 36%.

The decline in private work is due to a 35% drop in industrial awards, which total $600 million so far this year. Other types of private work are running above last year. Commercial building is up 91% with a total of $206 million. Private unclassified has gained 43% for a total of $345 million. Housing, with a total of $495 million, is up 8%.

In the public field, bridges and sewerage are the only categories which have gained this year. Bridge volume is up 28% and sewerage is up 20%. But highway awards are off 9%. This area and New England are the only regions which have dropped behind 1952 in this category. Public unclassified category is down 11% to $178 million.

• **Far West**—Private work here shows the biggest gain of any region. But state and municipal awards are down slightly, and federal volume has dropped sharply.

Industrial building is 187% ahead of last year, totaling $404 million. Private unclassified is up 150% to $79 million. Both commercial building and housing are up 10%.

Three types of public works show gains this year. Bridges are up 67%, with $85 million in contracts. Highways are up 6% and total $167 million. Unclassified is up 14% with $164 million in awards.

HEAVY CONSTRUCTION IN 1953 BY REGIONS

Contract awards reported by ENR and the Construction Daily, in millions of dollars

Region	All Construction		Private		State & Municipal		Federal	
	10 Mos. 1953	% Chge 52-53	10 Mos. 1953	% Chge 52-53	10 Mos. 1953	% Chge 52-53	10 Mos. 1953	52-53 % Chge
New England.	$ 529	— 4	$ 255	+21	$ 232	—15	$ 42	—36
Mid-Atlantic .	2,877	+32	1,527	+23	1,187	+60	163	—20
Atlantic	2,877	+32	1,527	+23	1,187	+60	163	—20
South	2,260	—32	1,173	— 4	804	+23	283	—80
Middle West..	2,885	— 6	2,036	+79	770	+33	79	—94
West of Miss.	2,717	—10	1,646	— 6	762	— 5	309	—36
Far West ...	1,598	+ 4	695	+91	513	— 1	390	—41
U. S. Total	$12,866	— 6	$7,331	+24	$4,268	+20	$1,266	—70

Distressed areas

ODM's new rules probably won't help construction

The Office of Defense Administration's new policy of offering more generous amortization in "chronic labor surplus areas" probably won't mean a great deal to construction men.

The new policy doesn't make it easier for any company to get fast tax amortization. All it does is to allow companies already eligible for fast writeoffs (because their industry is covered by a specific ODM expansion program) to have the benefit of a higher rate than they would be allowed in places that don't have unemployment problems.

For example: a freight car builder will now get an 80% writeoff if he builds a new plant or expands existing facilities in a chronic labor surplus area, while he would get only 70% if he builds the plant elsewhere. A full 100% writeoff won't be granted in any case, except to cover costs of protective construction against air raids (ENR Oct. 15, p. 21).

• **Petering out**—Washington observers believe the new policy won't mean much for construction in distressed areas, mainly because ODM's defense expansion program has been petering out (ENR Sept. 10, p. 158). Its expansion goals are the basis for fast tax writeoffs. ODM is now putting finishing touches on an up-to-date status report, in which some goals will show up as reached and many unfinished ones will be formally closed. Except for titanium and perhaps one or two other raw materials (where fast tax writeoffs aren't the important expansion incentive anyway), there are no plans to increase expansion goals.

The only way the fast tax writeoff device could be used to give real help to distressed areas would be to permit accelerated amortization for all new plant construction and expansion—in other words, for non-defense as well as defense industries. New legislation would be needed for this.

Levitt himself to build schools for his town

The problems that plague local school districts after a development builder moves on are an old, familiar story. Now the most famous of mass homebuilders has decided to do something about those problems.

William J. Levitt, builder of Levit-

town in Bucks County, Pa., is close to completing negotiations with the Bristol Township School Board to build two 20-room schools through a nonprofit foundation. Levitt guarantees that he will build the structures and prepare the sites for $500,000 each. His estimate is that the same schools would cost the school board $1 million apiece to build in the usual manner.

The schools would remain the property of Levitt's foundation. They would be leased to the Bristol School Board for 20 years at $38,000, apiece. In other words, each school would cost the community $760,000 in 20 years, by which time Levitt would have recouped his building costs and the costs of financing. After the 20-year lease expires, presumably it could be renewed at a nominal rental.

Levitt figures that each school would cost the community $2.3 million, if built and financed in the usual manner. In addition to $1-million building costs, he estimates $1.3 million more for debt service on the bonds for 35 years.

How can Levitt build a $1-million school for half-price? He explains it this way:

By his figuring, the cost of the average public building is 20% profit. He is working without a profit. Since his own organization is doing all the work, and providing the financing and land, he eliminates the architect's fee, cost of bond counsel and other legal expenses. He also believes that his organization can do the work more cheaply than it can be done in the case of the usual contractor setup. He is also able to save money by tying in development of the school sites with that of Levittown as a whole.

Naturally, Levitt isn't doing all this for nothing. Good schools for the children of Levittown residents make his houses more salable.

Price cutting declines on highway bids

Highway contractors around the U.S. are not competing as sharply for jobs as they were earlier this year. That's the story told by the U.S. Bureau of Public Roads Composite Mile Price Index, which edged up a little during the third quarter, after a sharp drop in the second quarter of this year.

The Composite Mile Price Index is now 159.4 (average bid prices in the years 1925 through 1929 = 100). The new value is 0.6% above the second quarter, but it's still 4% lower than the record high reached during the first three months of 1953.

If you will look at the various components of this index, shown in the table below, you will see that a sharp drop of 6.2% in bid prices for common excavation was offset by a 4.4% increase in concrete structures and a 2.1% rise in concrete pavement.

The table also shows the quantities and bid prices used in compiling the index. All prices in the structures category moved higher during the third quarter. The biggest rise was 8.8% in structural steel—reflecting the June boost in steel prices. Structural concrete and reinforcing steel also climbed, but not as much. Structural steel is now at a new high, reinforcing steel and structural concrete are still below the all-time highs reached last year.

On common excavation, the average price of 37 cents per cu yd is the lowest since the first quarter of 1951.

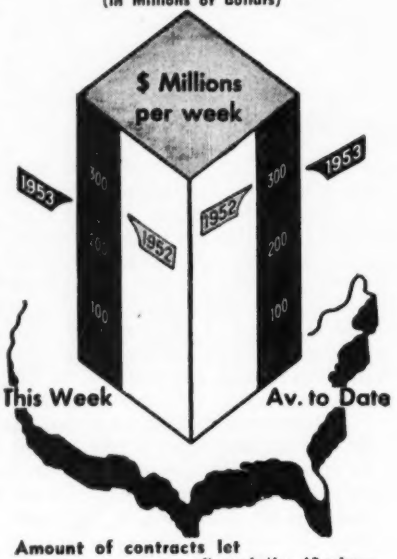
HIGHWAY PRICE INDEX, COMPOSITE STANDARD MILE

U. S. Bu. of Public Roads, 1925-29=100

	1953		1952
	3Q	2Q	3Q
Composite	**159.4**	**158.5**	**163.6**
Excavation, common	105.1	112.0	117.9
Pavement, concrete	171.8	168.2	168.6
Structures	247.6	237.1	255.4
Quantities and bid prices used			
Excavation, common, 17,491 cu yd	$0.37	$0.39	$0.41
Pavement, concrete, 3,726 sq yd	3.81	3.73	3.74
Structures:			
Reinforcing steel, 16,000 lb	0.123	0.120	0.126
Structural steel, 4,325 lb	0.196	0.180	0.195
Structural concrete, 68 cu yd	54.07	51.67	56.55

Activity This Week

As reported to ENR (in millions of dollars)



Amount of contracts let

	This Week	Cumulative 47 wks 1953	1952	% chge
Federal	$34.5	$1,332.7	$4,337.3	−69
State and municipal	107.1	4,538.4	3,788.7	+20
Total pub.	141.6	5,871.2	8,126.0	−28
Total priv.	103.1	7,643.7	6,453.2	+18
U. S. total	**$244.7**	**$13,514.8**	**$14,579.2**	**−7**
Contracts by type of work				
Waterworks	$3.0	$211.6	$205.0	+3
Sewerage	12.3	399.3	273.9	+46
Bridges	16.3	626.7	387.9	+62
Highways	34.6	1,626.4	1,328.0	+22
Earthwork, waterways	1.9	332.9	445.1	−25
Buildings:				
Public, excl. hsg.	48.5	1,559.0	4,152.4	−62
Housg., pub.	6.9	361.9	537.6	−37
Housg., priv.	37.0	3,184.6	2,722.2	+17
Commercial	24.9	1,062.4	689.7	+54
Industrial	37.2	2,567.4	2,561.7	+0.2
Unclassified	22.1	1,582.6	1,239.7	+28
Total	**$244.7**	**$13,514.8**	**$14,579.2**	**−7**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

	Week of Nov. 12 1953	Cumulative 46 Wks 1953	% chge 1952-53
Corporate securities	$20.9	$3,792.8	+12
State and municipal:			
Excluding housing	51.9	3,790.8	+42
Housing	0.6	262.1	−12
Federal loans	0.3	104.0	−68
Federal aid	...	770.0	+40
Total non-federal	**$73.7**	**$8,720.5**	**+21**
Federal approp.:			
In U. S.	...	$1,566.7	−79
Outside U. S.	...	28.9	−85
Total new capital	**$73.7**	**$10,316.2**	**−30**

ENR indexes	1953	Base Years = 100 1913	1926	1949
Construction cost	Nov	610.92	293.67	128.07
	Oct	610.76	293.59	128.04
Building cost	Nov	436.34	235.87	124.03
	Oct	436.31	235.86	124.03
Volume	Oct	528	215	153
	Sept	487	198	141

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY. (Except for earlier holiday closing)

Bids: December 8, 1953

Construction of Pump Houses

THE PORT OF NEW YORK AUTHORITY
LA GUARDIA AIRPORT
CONTRACT LGA-160.003

Sealed proposals for the construction of two storm water pumping stations at La Guardia Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1111, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P. M. on Tuesday, December 8, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1111, and copies will be furnished upon deposit of $25.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, November 19, 1953

Bids: November 24, 1953

Dwelling Unit Increment

HOUSING AUTHORITY OF THE CITY OF LOS ANGELES, CALIFORNIA
1401 EAST FIRST STREET
LOS ANGELES 33, CALIFORNIA
FOR PART 2—140 DWELLING UNIT INCREMENT
PUEBO DEL RIO EXTENSION
PUBLIC HOUSING ADMINISTRATION
PROJECT NO. CAL 4-15
LOCATION 53rd STREET, 55th STREET AND LONG BEACH AVENUE
LOS ANGELES, CALIFORNIA

Plans and Specifications
Prepared By
Theodore Criley, Jr. and Henry C. Burge
Architects
510 Knight Way, LaCanada, California
Telephone: SYlvan 0-3202

Invitation for Bids will be published October 16, 1953. Revised Plans and Specifications dated October 16, 1953 and Bidding Documents ready for distribution October 20, 1953.

Bids to be opened 2:15 P.M. (P.S.T.) November 24, 1953.

For further information regarding bidding Telephone ANgelus 2-2121, Extension 55.

Bids: December 8, 1953

Construction of Plumbing System

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 a.m. (Eastern Standard Time), the 8th day of December 1953, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud for the following contract and/or contracts.

For the construction of Plumbing System for the following Maintenance Building on the Pennsylvania Turnpike:

Contract No.	Maintenance Building	Station	County
427-A	Plymouth Meeting Maintenance Building and Barracks	506+00	Montgomery
428-A	Trevose Maintenance Building	368+35	Bucks

The work to be performed under this contract is generally in and around the Maintenance Building above-mentioned and enumerated. The work does not include the Electrical Systems, the Heating Systems nor building construction except as noted in the specifications or as shown on the Contract Drawings.

Copies of plans, specifications and Contract Documents are on file and open to public inspection on and after 17 November 1953, at the offices of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania, at the Commission's field office in Conshohocken, Pennsylvania, 10th Avenue and Hallowell Street and at the Commission's field office in Bristol, Pennsylvania, 700 Canal Street. Plans, specifications and other contract documents will not be available before this date for inspection or for mailing to prospective bidders.

Plans and specifications may be obtained from the Commission upon deposit of Ten ($10.00) Dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and specifications returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings and specifications.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Bids: December 8, 1953

Construction of Interceptor Sewer

OFFICE OF PURCHASING AGENT
CITY OF NASHVILLE, TENNESSEE
BIDS FOR PROJECT NO. 53-SD-2
NASHVILLE, TENNESSEE

Sealed proposals or bids will be received by the City Purchasing Agent of the City of Nashville, Tennessee, at Room 209 Courthouse—City Hall Building, until ten (10) o'clock A. M., on the 8th day of December, 1953, for furnishing of all materials, labor, tools, and appliances necessary for construction of:

LEFT BANK UPSTREAM OPEN-CUT INTERCEPTOR SEWER

Copies of the proposal, contract, documents, plans and specifications, may be obtained from the office of Rice, Harwood and Clark, Architect-Engineers, 905 American Trust Building, Nashville, Tennessee.

A charge of FIFTEEN ($15.00) DOLLARS will be made for each set of contract documents, proposal, plans and specifications. Deposit will be refunded in full amount and applicable to the first set obtained and returned by contractors submitting a bona fide bid. Deposit, less one-half principal sum thereof retained to cover cost of production and handling, will be refunded on all other sets returned within ten (10) days after opening of bids.

Each proposal or bid must be accompanied by a cashier's or certified check on a State or National Bank made payable to the City of Nashville, Tennessee, or a bidding bond executed by the bidder and a surety company authorized to transact business in the State of Tennessee, in the sum of not less than five (5%) per cent of the total amount of the bid. Said check or bond will be returned to the unsuccessful bidders as soon as contract has been awarded and to the successful bidder as soon as he has executed the contract and furnished the necessary bonds, and the same have been approved by the City Attorney and the contract has been executed by the City.

All bidders must be licensed contractors as required by Chapter 135 of the Public Acts of 1945 of the General Assembly of the State of Tennessee. Bidders name and license number must be placed on the sealed envelope containing these documents.

All bids must be made out on proposal form bound in the specifications. No interlineations, additions or deletions shall be made in the proposal form by bidder. The proposal form must not be detached from the specifications.

The City of Nashville, Tennessee, through its Mayor, reserves the right to reject any and/or all bids, to waive any informalities in the bids received and to accept any bid, which, in its opinion, may be for the best interest of the City.

E. B. Smith,
Purchasing Agent
The City of Nashville, Tennessee.

Bids: December 1, 1953

Installation of Sign Bridges

THE PORT OF NEW YORK AUTHORITY
GEORGE WASHINGTON BRIDGE
SIGN BRIDGES FOR CONNECTIONS TO HENRY HUDSON PARKWAY—POSTS 16 AND 17
CONTRACT GWB-130.004

Sealed proposals for the furnishing and installation of sign bridges at the George Washington Bridge connections to the Henry Hudson Parkway will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1111, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P. M. Tuesday, December 1, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1111, and copies will be furnished upon deposit of $25.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, November 19, 1953

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4079) will be received at Phoenix, Arizona, until December 16, 1953, for furnishing labor and materials for furnishing and erecting steel towers for approach span to Saguaro Switchyard, Davis Dam Project, Arizona-Nevada. Location in Pinal County, near Red Rock, Arizona. Principal items are: 36 footings, constructing reinforced concrete power footings; 9 towers, furnishing and erecting steel towers with crossarms; and other work. Completion time 150 days. For particulars, address Bureau of Reclamation, Phoenix, Arizona; or Building 53, Denver Federal Center, Denver, Colorado.

W. A. DEXHEIMER, Commissioner

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-4078) will be received at Denver, Colorado, until December 22, 1953, for furnishing two (2) 20-foot by 50-foot radial gates for Palisades Dam, Palisades Project, Idaho. Delivery is desired within 450 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

W. A. DEXHEIMER, Commissioner

FOR FASTER SERVICE

send all proposal advertising to Classified Advertising Division, 29th Floor, McGraw-Hill Pub. Co., Inc., 330 W 42nd St, N. Y. 36, N. Y.

OFFICIAL PROPOSALS

Bids: December 8, 1953

Construction of Maintenance Building

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 a.m. (Eastern Standard Time), the 8th day of December 1953, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud for the following contract and/or contracts.

For the construction of the Maintenance Building at the location listed below:

Contract No.	Maintenance Building	Station	County
427	Plymouth Meeting Maintenance Building and Barracks	506+00	Montgomery
428	Trevose Maintenance Building	368+35	Bucks

The work to be performed under this contract consists of the construction of the Maintenance Building, at points on the Turnpike listed above, not including however, the plumbing, the heating systems, the electrical work, the paving, or the seeding and sodding; except as noted on the specifications or as shown on the Contract Drawings.

Copies of plans, specifications and Contract Documents are on file and open to public inspection on and after 17 November 1953, at the offices of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania, at the Commission's field office in Conshohocken, Pennsylvania, 10th Avenue and Hallowell Street and at the Commission's field office in Bristol, Pennsylvania, 700 Canal Street. Plans, specifications and other contract documents will not be available before this date for inspection or for mailing to prospective bidders.

Plans and specifications may be obtained from the Commission upon deposit of Ten ($10.00) Dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and specifications returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings and specifications.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Relocation Sprinkler System Supply Mains, Port Newark, New Jersey

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M 206
PROPOSAL NO. 287

Sealed proposals for furnishing all labor, material and equipment to relocate sprinkler supply mains in Building No. 105, Port Newark, N. J., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111-8th Ave., New York 11, until 11:00 A.M. (E.S.T.) Thursday, December 3, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

OFFICIAL PROPOSALS

Bids: December 18, 1953

River Interceptors

PROJECT WVA 46-P-5A, UNIT ONE, SUB-SECTION 3 & 4
KANAWHA RIVER INTERCEPTORS, PATRICK STREET TO ELK RIVER
CHARLESTON, W. VA.

The Sanitary Board of The City of Charleston, Charleston, West Virginia, will receive sealed bids for "Kanawha River Interceptors, Patrick Street to Elk River" until 2 P M. Eastern Standard Time on the 18th day of December, 1953, at the office of The Sanitary Board, Room 15, City Building, at which time and place all bids will be publicly opened and read aloud.

ESTIMATED BID QUANTITIES

SUB-SECTION 3 Principal items
- 5400 lineal feet 60 inch diameter pipe sewer in tunnel, steel liner plate with concrete pipe lined and plain alternate.
- 400 lineal feet average 18" V.C.P. in tunnel regulator leads.
- 300 cubic yards regulator concrete.
- 390 vertical feet manholes.

SUB-SECTION 4 Principal items
- 3000 lineal feet 48" diameter pipe sewer in tunnel as in sub-section 3.
- 100 lineal feet 18" V.C.P. in tunnel.
- 20 cubic yards regulator concrete.
- 280 vertical feet manholes.
- Pool level or above.
- Sand or clay strata. Cores and data for contractors information will be available in two weeks. Furnished as addenda, but not guaranteed by the owner.

The successful bidder will be required to furnish a satisfactory performance bond in the amount of 100 per cent of contract.

Liquidated damages for delay will be One Hundred Dollars ($100.00) per day for each calendar day beyond the date specified in the contract.

The contract documents, including plans and specifications are on file at the office of The Sanitary Board, City Building, Charleston, West Virginia, and at the office of Settle Engineers, Inc., 2nd Floor Peoples Building, Charleston, West Virginia, where they may be examined free of charge.

Copies of the documents may be obtained by depositing Forty Dollars ($40.00) with Settle Engineers, Inc., 2nd Floor Peoples Building, Charleston, West Virginia, for each set of documents so obtained. The amount of the deposit for one (1) set of documents will be refunded to each actual bidder who returns the plans and documents in good condition within five (5) days after the opening of bids.

The Sanitary Board of The City of Charleston reserves the right to reject any or all bids and to waive any informalities in bidding.

A certified check or cashier's check, payable to The Sanitary Board of The City of Charleston, West Virginia, or a satisfactory bid bond executed by the bidder and a surety company authorized to do business in West Virginia, in an amount of dollars at least equal to five per cent (5%) of the bid or an equal amount of U. S. Government Bonds, shall be submitted with each bid.

No bid may be withdrawn after the scheduled closing time for receipt of bids, for at least sixty (60) days thereafter.

THE SANITARY BOARD OF THE CITY OF CHARLESTON
By: F. Duane Hill, Secretary

Bids: December 7, 1953

Dock For Slip

Sealed bids will be received until 5:00 P. M., EST, December 7, A. D., 1953, in the office of the Broward County Port Authority for:

Dock for Slip No. 3

Bidding blanks may be obtained from the office of the Port Manager. Plans and specifications are on file in the office of the Port Manager, Administration Office, Port Everglades Station, Fort Lauderdale, Florida.

A certified check or bank check for 2% of the total amount of the bid payable to BROWARD COUNTY PORT AUTHORITY shall accompany each proposal as evidence of good faith and responsibility of the bidder. This check shall be retained by the payee as liquidated damages should the bidder fail or refuse to enter into a contract with the payee for the execution of the work embraced in the proposal, in the event the proposal of the bidder is accepted.

The Broward County Port Authority reserves the right to reject any or all bids.

R. T. Spangler, Port Manager

OFFICIAL PROPOSALS

Bids: December 15, 1953

Construction of Chemical Building and Miscellaneous Structures

CHEMICAL BUILDING
AND
MISCELLANEOUS STRUCTURES
NORTHEAST STATION
FOR THE
DEPARTMENT OF WATER SUPPLY
CITY OF DETROIT, MICHIGAN
CONTRACT NO. NE-7

Sealed proposals for the construction of the Chemical Building and Miscellaneous Structures for the Northeast Station, at 11000 East Eight Mile Road, will be received by the Board of Water Commissioners of the City of Detroit. Proposals shall be addressed to the Board of Water Commissioners, City of Detroit, Room 506 Water Board Building, 735 Randolph Street, Detroit 26, Michigan, and shall be endorsed "Proposal for Contract No. NE-7". Proposals will be received until 2:00 P.M. Eastern Standard Time, December 15, 1953, at which time they will be opened and read aloud in the Board Room, Fifth Floor, Water Board Building, 735 Randolph Street, Detroit 26, Michigan.

Included in the work is the construction of the Chemical Building upon an existing reinforced concrete foundation, the Galleries upon the roof slab of Settling Basins now under construction, Raw Water Conduits, Venturi Meter Chamber, Chlorination Chamber, Raw Water By-Pass, Pedestrian Tunnel, and appurtenant structures. The Chemical Building, approximately 59 feet by 183 feet in plan, will be four stories above grade, with reinforced concrete substructure, and a superstructure consisting of structural steel framing with reinforced concrete floors and roof slab, masonry walls with limestone and granite facing and glazed tile interior finish. The Galleries, approximately 4100 square feet in area, will be one story high with masonry walls of face brick exterior and glazed tile interior finish, and with a reinforced concrete roof slab. The two 84-inch diameter Raw Water Conduits, approximately 463 feet long, will consist mainly of precast reinforced concrete pipe. The work also includes the furnishing and installation of pumps, sluice gates, storage tanks, chemical feed and handling equipment, rapid mixers, venturi meters, electric freight elevator, hoist crane, drain lines, heating, ventilating, plumbing and miscellaneous piping systems, and electrical power and lighting.

The Contract Documents, including the Notice to Bidders, the Forms of Proposal and Agreement, the Specifications, and the Contract Drawings may be examined during business hours, at the office of the Department of Water Supply, Room 706 Water Board Building, Detroit, Michigan. The Contract Documents may be obtained by making a deposit of Fifty Dollars ($50.00) per set, which sum will be refunded upon the return of the complete Contract Documents in good condition within thirty (30) days after the bid date, or if used in making a bona fide proposal.

As security for the acceptance of the Contract, each proposal shall be accompanied by a certified check in an amount not less than five per cent (5%) of the total lump sum price bid, drawn payable to the City of Detroit, Board of Water Commissioners, or a satisfactory bid bond which will hold and firmly bind the bidder and his surety unto the Corporation of the City of Detroit in the full amount of five per cent (5%) of the total lump sum price bid.

No proposal may be withdrawn for at least sixty (60) days after the scheduled closing time for receipt of bids.

The Board of Water Commissioners reserves the right to waive any informality in any bid and to accept any bid, or to reject any or all bids, should it deem it to be in the best interests of the City of Detroit to do so.

CITY OF DETROIT
BOARD OF WATER COMMISSIONERS
George A. Shaffer, President
Alfred J. Simpson, Vice-President
Harvey A. Wagner
Oscar Wagner
L. G. Lenhardt, Superintendent, General Manager and Chief Engineer
E. H. Bauer
Acting Secretary

READ THE OFFICIAL PROPOSAL COLUMN OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

OFFICIAL PROPOSALS

Bids: December 3, 1953

New York State Road Work

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time, on the 3rd. day of December 1953, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1 G. L. Nickerson, District Engineer, 353 Broadway, Albany, N. Y.				
Albany	C.T. 53-13	New York State Thruway—Catskill Section-Subd. 3A (Southern Boulevard Interchange)		Water Main and Sanitary Sewer	$4,000 Plans $10	$77,000
Washington	FARC 53-130	Cambridge-Salem Pt. 2, S.H. 5293 Proj. F-570(5)	0.39	8" Cem. Conc. Pavt. 22' Wide..	$5,000 Plans $10	86,000
		DISTRICT No. 8 J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.				
Rockland	H.T. 53-10 R.C. 53-121 S.T. 53-33	New York State Thruway—Hudson Section-Subd. 9A (Nyack Approach to Tappan Zee Bridge); Nyack Interchange; Access Ramps; New Jersey State Line-Nyack Pts. 3 and 4, S.H. 8136-5682; Nyack Village: Main St., S.H. 8459; Knapps Corners-Nyack, S.H. 5178 and Nine Mile. Secondary Cross Rds. Including Relocation of R.R. Tracks	4.46 Acc. 1.57 Thy.	9" Cem. Conc. Pavt. 2 @ 37' Wide = 1.57 Mi. 9" Unreinf. Cem. Var. Wd. Conc. Pavt. = 3.07 Mi. Asp. Conc. Ty. 1A, Opt. = 0.78 Mi. R.R. Relocation = 0.56 Mi. Misc. Work = 0.05 Mi. 6 Hy. Seps. Comp. I-Beams 227.2', 60.2', 180.8', 215.6', 180.3', and 200.8' R.R. Sep. Comp. I-Beam and Thru Gird. 286.3'	$400,000 Plans $100	7,721,000
Rockland	H.T. 53-12	New York State Thruway—Hudson Section-Subd. 8 (Suffern Nyack Pt. 1)	0.21	9" Cem. Conc. Pavt. 2@ 37' Wide = 0.19 Mi. Misc. Work = 0.02 Mi. R.R. Hy. Sep. Comp. I-Beams and Girders 787.2'	$156,000 Plans $25	2,850,000
Westchester	H.T. 53-13 S.T. 53-35	New York State Thruway—Hudson Section-Subd. 10 (Tuckahoe Road-Tarrytown, Pt. 2); Access Ramps; Mountain Road	0.73 Acc. 0.42 Thy.	9" Cem. Conc. Pavt. 2 @ 37' Wide = 0.42 Mi. 9" Unreinf. Cem. Conc. Pavt. Var. Wide = 0.73 Mi. Hy. Sep. Comp. I-Beams and Girder 477.3' Hy. R.R. Sep. Comp. Girder 750.3'	$180,000 Plans $50	3,309,000
Westchester	P.S.C. 4678-5777	Elimination of Grade Crossing of N.Y.C.R.R. and Mt. Kisco Village; Main Street, S.H. 865, South Street and Hubbels Crossing	1.70	8" Cem. Conc. Pavt. 30'-44' Wide = 0.20 Mi. Asp. Conc. Ty. 1A, Opt. = 0.52 Mi. Misc. Work = 0.13 Mi. R.R. Track Work = 0.76 Mi. 3 R.R. Seps. Comp. I-Beams 56.3', 60' and 124'	$90,000 Plans $50	1,667,000
		DISTRICT No. 9 F. W. Donovan, District Engineer, 71 Frederick St., Binghamton, N. Y.				
Delaware	53 BWS 2-3-3A-3B-3C-3CT-4	N. Y. City: Board of Water Supply Road No. 3 (Pepacton Reservoir) and Roads Nos 2, 4, 3A, 3B, 3C, 3CT	5.72	Bit. Mac. Ty. 1 (Pen. Meth.) = 5.70 Mi. Misc. Work = 0.02 Mi.	$95,000 Plans $25	$1,605,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: December 8, 1953

Construction of Heating System

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 a.m. (Eastern Standard Time), the 8th day of December 1953, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud for the following contract and/or contracts.

For the construction of heating system for the following Maintenance Building on the Pennsylvania Turnpike:

Contract No.	Maintenance Building	Station	County
427-B	Plymouth Meeting Maintenance Building and Barracks	506+00	Montgomery
428-B	Trevose Maintenance Building	368+35	Bucks

The work to be performed under this contract is generally in and around the Maintenance Building above-mentioned and enumerated. The work does not include the Electrical Systems, the Plumbing Systems nor building construction except as noted in the specifications or as shown on the Contract Drawings.

Copies of plans, specifications and Contract Documents are on file and open to public inspection on and after 17 November 1953, at the offices of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania, at the Commission's field office in Conshohocken, Pennsylvania, 10th Avenue and Hallowell Street and at the Commission's field office in Bristol, Pennsylvania, 700 Canal Street. Plans, specifications and other contract documents will not be available before this date for inspection or for mailing to prospective bidders.

Plans and specifications may be obtained from the Commission upon deposit of Ten ($10.00) Dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and specifications returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings and specifications.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Bids: December 8, 1953

Electrical System Construction

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 a.m. (Eastern Standard Time), the 8th day of December 1953, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud for the following contract and/or contracts.

For the construction of Electrical System for the following Maintenance Building on the Pennsylvania Turnpike:

Contract No.	Maintenance Building	Station	County
427-C	Plymouth Meeting Maintenance Building and Barracks	506+00	Montgomery
428-C	Trevose Maintenance Building	368+35	Bucks

The work to be performed under this contract is generally in and around the Maintenance Building above-mentioned and enumerated. The work does not include the Plumbing Systems, the Heating Systems nor building construction except as noted in the specifications or as shown on the Contract Drawings.

Copies of plans, specifications and Contract Documents are on file and open to public inspection on and after 17 November 1953, at the offices of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania, at the Commission's field office in Conshohocken, Pennsylvania, 10th Avenue and Hallowell Street and at the Commission's field office in Bristol, Pennsylvania, 700 Canal Street. Plans, specifications and other contract documents will not be available before this date for inspection or for mailing to prospective bidders.

Plans and specifications may be obtained from the Commission upon deposit of Ten ($10.00) Dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and specifications returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings and specifications.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

OFFICIAL PROPOSALS

Bids: November 30, 1953

Construction of Water Storage Reservoir

1. Sealed proposals received on November 9, 1953 for constuction of WATER STORAGE RESERVOIR in Winchester, Virginia, were rejected because completion time bid was unsatisfactory. New proposals, accordingly will be received by the City Manager, City Hall, Winchester, Va., until 2:00 o'clock P.M. on November 30, 1953 and there publicly opened and read immediately thereafter.

2. The work will consist of providing all labor, materials, equipment and incidentals required for the construction of a 3 million gallon steel water reservoir on foundation prepared by others.

3. Plans, specifications, bidding and contract documents may be examined at the office of the Consulting Engineers, Alexander Potter Associates, 50 Church Street, New York, N. Y., or at the office of the City Manager, City Hall, Winchester, Va., and there obtained upon deposit of Twenty Five Dollars ($25.00). Full refund will be made to actual bidders for return of one (1) set, in good condition, within two weeks after closing date for receipt of bids; refund for return of all other sets in good condition, within the same period, will be fifty (50) per cent of the deposit.

4. All proposals must be on the form contained in the Contract and Specifications.

5. Contractors, whether resident or non-resident in Virginia will be required to show evidence of a certificate of registration as required by Chapter 7 of Title 54 of the Code of Virginia before their bids will be considered, if the bid is $20,000.00 or more.

6. All bids must be accompanied by a certified check or acceptable bidder's bond in an amount of not less than Five Per Cent (5%) of the amount of the bid made payable to the City Treasurer, City of Winchester, Va. Said checks will be returned to the unsuccessful bidders within fifteen (15) days after opening of bids.

7. The successful bidder will be required to furnish a Performance Bond conditioned upon the faithful performance of the contract and upon payment of all persons supplying labor and furnishing materials on the contruction of the work.

8. No bidder may withdraw his bid within thirty (30) days after actual date of opening thereof.

9. The city reserves the right to reject any or all bids and to waive any informality in the bid.

DATED Nov. 10, 1953

CITY OF WINCHESTER, VIRGINIA

By: S. Lee Grant, City Manager

Bids: December 10, 1953

Ohio Turnpike Commission 139 East Gay Street Columbus 15, Ohio

NOTICE TO BIDDERS

Contract C-47
Contract C-48
Contract C-49
Contract C-47&48
Contract C-48&49
Contract C-47,48&49

Sealed proposals will be received by the Ohio Turnpike Commission at or before 10:00 A.M., Eastern Standard Time, December 10, 1953, for the performance of each of the Contracts enumerated above.

The work covered by Contract C-47 consist generally of the construction of grading, drainage, structures, and paving of approximately 3.5 miles in Construction Section 47 of Ohio Turnpike Project No. 1, beginning at a point about 226 feet east of Ryan Road at Turnpike Centerline Station 580+00 and extending eastwardly to a point about 231 feet east of River Road at Turnpike Centerline Station 765+71, all in Lucas County, and the construction of engineer's office buildings and facilities on or near the site of the work.

The work covered by Contract C-48 consists generally of the construction of grading, drainage, structures, and paving of approximately 4.3 miles in Construction Section 48 of Ohio Turnpike Project No. 1, beginning at a point about 1385 feet east of Cressy Road at Turnpike Centerline Station 352+40 and extending eastwardly to a point about 226 feet east of Ryan Road at Turnpike Centerline Station 580+00, all in Lucas County, and the construction of engineer's office buildings and facilities on or near the site of the work.

The work covered by Contract C-49 consists generally of the construction of grading, drainage, structures, and paving of approximately 4.1 miles in Construction Section 49 of Ohio Turnpike Project No. 1, beginning at a point about 2205 feet west of State Route 295 at Turnpike Centerline Station 135+92 and extending eastwardly to a point about 1385 feet east of Cressy Road at Turnpike Centerline Station 352+40, all in Lucas County, and the construction of engineer's office buildings and facilities on or near the site of the work.

The work covered by Contracts C-47&48, C-48&49, and C-47,48&49, which cover various combinations of Construction Sections 47, 48, and 49, as indicated by the numbering of such contracts, is the construction as above and elsewhere herein generally described for the individual Construction Sections in each combination contract.

In Construction Section 47, the principal structures to be built are five box culverts, seven single bridges and three twin bridges (each twin bridge consisting of two separate but nearly identical and parallel structures). All of the bridges are steel each supported on reinforced concrete abutbeam bridges of from three to five spans ments and bents. The abutments and bents of all the bridges are to be supported on cast-in-place reinforced concrete piles.

In Construction Section 48, the principal structures to be built are two box culverts, three single bridges and three twin bridges (each twin bridge consisting of two separate but nearly identical and parallel structures). All of the bridges are steel beam bridges of from three to five spans each supported on reinforced concrete abutments and bents. The abutments and bents of all the bridges are to be supported on cast-in-place reinforced concrete piles.

In Construction Section 49, the principal structures to be built are three box culverts, three single bridges and two twin bridges (each twin bridge consisting of two separate but nearly identical and parallel structures). One of the twin bridges which is of three spans is a steel girder bridge. All other bridges are of three to five spans each and are steel beam bridges. All of the bridges are supported on reinforced concrete abutments and bents. The abutments and bents of all of the bridges are to be supported on cast-in-place reinforced concrete piles.

Approximate quantities of the major items of construction for Contract C-47 are as follows:

Roadway Excavation.	870,000 cubic yards
Borrow	650,000 cubic yards
Structural Concrete..	12,600 cubic yards
Reinforcing Steel....	2,058,000 pounds
Fabricated Structural Steel	3,806,000 pounds
Concrete Bearing Piles	49,800 lineal feet
10" Reinforced Concrete Pavement ..	119,000 square yards

Approximate quantities of the major items of construction for Contract C-48 are as follows:

Roadway Excavation.	283,000 cubic yards
Borrow	511,000 cubic yards
Structural Concrete..	6,700 cubic yards
Reinforcing Steel....	956,000 pounds
Fabricated Structural Steel	1,256,000 pounds
Concrete Bearing Piles	22,000 lineal feet
10" Reinforced Concrete Pavement ..	120,000 square yards

Approximate quantities of the major items of construction for Contract C-49 are as follows:

Roadway Excavation.	118,000 cubic yards
Borrow	1,079,000 cubic yards
Structural Concrete..	7,400 cubic yards
Reinforcing Steel....	1,104,500 pounds
Fabricated Structural Steel	2,352,000 pounds
Concrete Bearing Piles	30,900 lineal feet
10" Reinforced Concrete Pavement ..	112,000 square yards

Copies of the Plans and General Specifications for said Contracts are immediately available for public inspection or purchase at the office of the Chief Engineer, Ohio Turnpike Commission, 139 East Gay Street, Columbus 15, Ohio. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

General Specifications for Ohio Turnpike Project No. 1	$ 5.00
Plans (also soil profiles and boring logs), per set, per construction section	15.00
Cross Sections, per set, per construction section	25.00

Forms or copies of all remaining Contract Documents, including Proposals for each of the Contracts set forth above, the Affidavit which must accompany any such Proposal, this Notice to Bidders, the Special Provisions applying to said Contracts, the Contract to be entered into with the (or each) successful Bidder, and the Contract Bond to be furnished with such Contract, will be furnished upon request and without charge to any interested person at the aforesaid Chief Engineer's office.

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Each Proposal must be accompanied by a certified check or checks on a solvent bank or banks, payable to the order of the Ohio Turnpike Commission in an amount not less than $100,000 per Construction Section covered by the Contract on which the Bidder bids. If the Bidder shall tender bids for more than one Contract, said amount shall be not less than $100,000 per Construction Section covered by the Contracts on which he shall tender Proposals; provided, however, that if one or more Construction Sections are included in more than one Contract for which the Bidder shall tender Proposals, the Bidder need furnish only $100,000 per each such section, notwithstanding such duplication. The Commission may at any time cash any such check. Each such check or the proceeds thereof will be held by the Commission as a guaranty that, if any Proposal guaranteed thereby is accepted, a Contract will be entered into and the performance of the Proposal secured.

Each such check or the proceeds thereof will be returned or forfeited as provided in paragraphs G-3.03 and G-3.06 of the aforesaid General Specifications, provided that if there be a forfeiture, it shall be of an amount equal to $100,000 per Construction Section covered by the Proposal with respect to which the forfeiture occurs, and any excess will be returned to the Bidder.

All bids must be received at or before 10:00 A.M., Eastern Standard Time, December 10, 1953, in the offices of the Ohio Turnpike Commission, 139 East Gay Street, Columbus 15, Ohio. At said hour, the bid box will be removed to the Neil House Hotel, 41 South Hight Street, Columbus, Ohio, where Proposals will be publicly opened and read.

The award of any of the above-enumerated Contracts, if any award be made, will be to the Bidder or Bidders whose Proposal or combination of Proposals is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

OHIO TURNPIKE COMMISSION

Engineering News-Record

Reaches Your Local Contractors

Its distribution among the contractors of any one state is in proportion to the number of contractors situated in that state. The Official Proposal Columns of *Engineering News-Record* offer precisely the same efficient service to municipalities, counties, state and federal departments in every section of the United States.

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.
POSITION WANTED & INDIVIDUAL SELLING OPPORTUNITY WANTED undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.50 a line an insertion.

INFORMATION:
BOX NUMBERS count as 1 line additional in undisplayed ads.
DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:
The advertising rate is $17.10 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

Send NEW ADVERTISEMENTS: To New York City Office, 330 W. 42nd St., N. Y. 36 for December 3rd issue closing November 20th

---

JR. CIVIL ENGINEERS FOR CALIFORNIA

Permanent positions in California's huge highway program. Wide choice of locations. High-grade professional experience. Open to CE graduates or to non-graduates with 2 years' experience. $376 to start, raise in six months. Positions open at this level only.

STATE PERSONNEL BOARD
1015 L Street Sacramento 14, Calif.

CHIEF DRAFTSMAN
DESIGNERS and DRAFTSMEN

For important highway projects including toll roads. Substantial positions with good future. Must have adequate background and experience.

J. STEPHEN WATKINS
Consulting Engineer
251 East High, Lexington, Kentucky

WANTED
EXPERIENCED GENERAL SUP'T.

On heavy construction in the East, able to take charge from estimating to completion. 15T rate only. State experience and when available.
P-9733, Engineering News Record
330 W 42 St., New York 36, N. Y.

WANTED: TUNNEL SUP'T.

By Philadelphia Concern. Experienced from bidding to completion. State qualifications and salary.
P-9730, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

When Answering
BOX NUMBERS...

to expedite the handling of your correspondence and avoid confusion, please do not address a single reply to more than one individual box number. Be sure to address separate replies for each advertisement.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED—BUILDING Construction Estimator—By old established North Jersey Company—Must be experienced with emphasis on Industrial Construction. Must have engineering background and be able to handle the complete estimate. Excellent Salary—Profit Sharing—Opportunity to advance—Age 32-42. P-9232, Engineering News-Record.

WANTED: EXPERIENCED estimator, engineering background preferable. Must be capable of take-off, pricing, scheduling, etc., Business located in South Dakota. Firm well established, progressive, in business since 1930. Salary open. P-9594, Engineering News-Record.

STAFF ASSISTANT to General Superintendnt for combination structural fabricating and structural steel warehousing organizing of medium size in Western Pennsylvania. Practical background in administrative controls such as production planning, scheduling, cost reports; materials storage, layout, work measurement, methods improvement. Persuasive ability to really plug ideas for improvement to "hard-to-sell" superintendent and department managers. Excellent salary and company benefits which include company paid group insurance and hospitalization, sick leave and annual paid vacation. Write giving age, education, experience, personal qualifications. P-9695, Engineering News-Record.

REGISTERED CIVIL Engineer. General Municipal Technical and Administrative Duties. $327-$425 commensurate with experience. City of Delray Beach, Florida. Apply City Manager.

WANTED: CIVIL Engineer, graduate with between five and ten years general surveying experience with heavy exposure to property surveys. Permanent position offering excellent growth potentialities with firmly established company emphasizing photo grammetric engineering and cadastral mapping services. Location—Northeastern United States. Write full particulars, including education, availability, experience, career objectives, and salary requirements to P-9632, Engineering News-Record.

STRUCTURAL ENGINEER — with at least 10 years experience in estimating, design and supervision, for a Mid-West Contractor's Office. Reply stating age, experience, etc. P-9744, Engineering News-Record.

DRAFTSMAN WANTED—Experienced for detailing miscellaneous and/or structural steel by Bushnell Steel Company, P. O. Box 2579, Jacksonville, Florida. Reply giving brief resume of experience, education, availability, and salary expected.

WANTED: STRUCTURAL steel detailer and checker for small fabricating shop. Prefer married man of mature age with at least 5 years actual experience capable of making estimates and mill orders. Have attractive position to offer. Give resume of experience, age, and salary. Write Berger Steel Company, Lafayette, Indiana.

BOROUGH ENGINEER, Pottstown, Pa. Graduate civil engineer, registered in Pennsylvania, or qualified to obtain registration in Pennsylvania, with about ten years' experience, heavy on municipal engineering with extensive field and office experience. Age 32 to 36. Salary open. Apply promptly to Horace B. Gulden, Borough Manager.

CIVIL ENGINEERING instructor to teach surveying, sanitation and steel design. Salary open. Available date: Jan. 15, 1954. Contact L. U. Rastrelli, University of Wichita, Wichita, Kansas.

(Continued on page 150)

DESIGN ENGINEERS

With structural and concrete design experience applicable to Blast Furnace or Steel Plant Design.

also

PIPING DESIGNERS

With experience applicable to Oil Refinery Design.

Openings available at our Cleveland, Ohio office.

Top Hourly Rates
Permanent Positions
Overtime—45 hour week
No Age Limitations

Write, giving complete background and experience to:

ARTHUR G. McKEE & CO.
2300 Chester Avenue
Cleveland 1, Ohio

SENIOR FIELD ENGINEERS

Electrical Civil Mechanical

Graduate engineers with responsible field experience on steam power plants or related heavy industrial projects. Require experience in directing the mechanical, electrical or civil-structural phase of a major construction project.

Please write giving complete qualifications, references, and salary requirements. Your reply will be confidential.

BECHTEL CORPORATION
220 Bush St. San Francisco, Calif.

WANTED
EXPERIENCED ESTIMATOR

On general heavy construction in Pennsylvania, New Jersey and Delaware. State experience and salary.
P-9727, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS VACANT
(Continued from page 149)

ESTIMATOR—ENGINEER preferred. Building construction, Public Work, must be experienced in take off and pricing excavation, concrete, masonry and carpentry. New York City. Good opportunity with growing firm. Five Boro Construction Corp., 2 Lafayette St., New York 7, N. Y.

FOREMAN—SEWER and Water Works. Must be familiar with wellpoint work. Good opportunity for the right man. Joe Reinertson, Contractor, 2745 W. Beaver St., Jacksonville, Fla., P. O. Box 4096.

WANTED—RECENT civil or mechanical engineering graduates, General field of municipal water supply. Permanent position with annual increase in salary and bonus. Profit Sharing Plan. Frequent change in location necessary. P-9768, Engineering News-Record.

SELLING OPPORTUNITIES OFFERED

SALES ENGINEERS—Albany, New York and Pittsburgh, Pennsylvania with established national concern selling prefabricated metal products to engineering and construction markets. Position offered is permanent and presents excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Age 24 to 30. SW-8254, Engineering News-Record.

WANTED—SALESMAN to sell Office Trailers to Contractors. Must be experienced in selling to Contractors. Not over 40 years of age. Contact A. V. Williams, Box 145, Baltimore 20, Maryland.

POSITIONS WANTED

GRADUATE ENGINEER B.S. (C.E.) and B.S. (Ag.E.) desires responsible position in foreign construction work. Three years experience; 1-½ years on hydro-electric project and highway design; 1-½ years in foreign construction supervision. Excellent references. PW-9555, Engineering News-Record.

ESTIMATOR AND Construction Superintendent on Roads, Parkways, Drainage and Sewers. Twenty-five years experience. Bidding and subcontract negotiation. Available on short notice. PW-9657, Engineering News-Record.

SUPERINTENDENT CONSTRUCTIONS, broad experience 25 years varied types of projects. Anywhere. Engineer. PW-9660, Engineering News-Record.

PROJECT MANAGER available Graduate Civil Engineer BSCE with early experience design in Sanitary field also 20 years experience South America in responsible charge construction large projects involving water works, sewers, pavements, piers, port works, foundations. PW-9662, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT and civil engineer. Eighteen years practical experience as superintendent & engineer, bridges, roads, all types of buildings, engineering, architectural, age, forty-five, knows costs, sober, reliable & excellent background, available thirty days. PW-9462, Engineering News-Record.

ENGINEER OF Structures—Age 52; 30 years experience; in charge of design, supervision of construction, client relations; railroad and highway bridges, industrial and public buildings, marine and heavy structures. Now employed, desire permanent connection New York area consulting engineer. PW-9697, Engineering News-Record.

CIVIL ENGR., 30, C.E. Grad. 10 years wide experience, home and abroad, large highway and sewer projects. Excellent qualifications and refs. $6500 per annum. PW-9693, Engineering News-Record.

STEEL SUPT. 28 years supervisory experience. Reinforced Steel setting. Structural steel erection Misc. & ornamental iron erection. Precast concrete in Fabrication and Erection, cost conscious. Prefer Houston, Texas location or Southern contractor. PW-9740, 520 N. Michigan Ave., Chicago, Ill.

STRUCTURAL ENGINEER, licensed graduate, 28 years office and field, industrial buildings, chemical plants, waterfronts, underground structures, etc., available for permanent responsible position. PW-9195, Engineering News-Record.

STRUCTURAL ENGINEER: 8 years diversified experience; industrial plants & commercial buildings, checking, design; concrete and steel; Graduate C.E. N.Y. area. PW-9802, Engineering News-Record.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty third year.
WILSON Engineering Corp
College House Offices HARVARD SQ. CAMBRIDGE MASS.

Engineers—Foremen—Office Men
Learn latest methods to organize and run work. Prepare for the top jobs.
Send post card for details.
GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
411 So. 5th Ave. Lake Worth, Florida

POSITIONS WANTED

ELECTRICAL ENGINEER B.E.E. 15 years experience industrial, commercial buildings. Electrical design, specification writing, budget estimates. Part time. PW-9761, Engineering News-Record .

BUILDING CONSTRUCTION executive, field-office engineer. 25 years diversified experience, Middle Atlantic and Southeastern states. Experienced in administrative and supervisory capacity, estimating, buying, subcontracts, requisitions. Good draftsman, etc. Salary commensurate with responsibilities. PW-9758, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, Civil Engineering background. 20 years experience Heavy Construction, Housing Projects, Storm Sewer and Sanitary Sewers. Desire connection with Contractor of Salary and Profit Share basis. South and West preferred. Age 42. PW-9752, Engineering News-Record .

DESIGN ENGINEER, 22 yrs. varied experience on large irrigation works (18 yrs. with U. S. Bur. of Recl.). Experience includes extensive hydraulic and concrete design; cost and quantity estimates; preparation of cost and progress reports; material expediting; training and supervising men in this work. Two years as Chief Design Engineer for multimillion dollar project in South America. Detailed experience record upon request. PW-9751, Engineering News-Record.

SUCCESSFUL CONSTRUCTION man, age 40, is interested in relieving you of most or all of your construction problems on grading, paving, drainage on highways, airdromes, floodwalls, etc. as top level supervisor. Reply PW-9750, Engineering News-Record.

AVAILABLE: FOREIGN Heavy Engineering-Construction experience acquired in 25 years as Executive, one half abroad, including negotiations with Governments, Banks etc. and operation of contracts and all business pertaining thereto. Inquiries will be welcomed for use of services in auxiliary capacity without changes in existing organization. PW-9776, Engineering News-Record.

DESIRE POSITION with engineer or contractor. Eighteen years experience in office and field on a variety of projects. Supervisory, field layout, drafting and design, know construction methods. PW-9748, Engineering News-Record.

BUSINESS OPPORTUNITY

For Sale:
Industrial commercial property suitable for contractors yard and offices or other purposes approximately 26,400 square feet vicinity of Hyattsville, suburban to Washington, D. C. Will build to suit tenant if wishing to rent. Write c/o P.O. Box 329, Hyattsville, Maryland.

PARTNER
IN SUNNY FLORIDA
Established firm catering to archts., engineers, contrs., bldrs., industrials with several old quality lines of bldg. products, specialties and equipment. Seeks financially sound, capable working partner to exploit the terrific sales potential of this state. Write
CONTRACTORS SPECIALTIES CO.
Tampa, Fla.

FOR SALE
BARGAIN
6—B34 LeTourneau with E25 Scrapers in running shape. Excellent, 36 ply tires
EUCLID-MEMPHIS SALES, INC.
P. O. Box 2493 Phone 8-0491
185 E. Butler Ave. Memphis, Tenn.

FOR SALE
Two Steel Closure Gates
In A-1 condition, used only once on Hydro Electric Power Development in Province of Quebec, Canada.
Clear Width of Opening—21 ft. 0"
Clear Length of Opening—28 ft. 9"
Includes Hoisting Structure but no Embedded Parts.
Detailed Specification and full information given on request to
FS-9519, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

FOR SALE—SACRIFICE
NEW EQUIPMENT
2—30 Ton Capacity Silent Hoist Model FHE-50 AC Power Reversing Keyed Drum Winches—With Electro Dynamic 50 H.P., 220 V, 3 Phase, 60 Cycle Motors and Clark Electric Brakes. Each Complete With Cutler-Hammer Magnetic Starter, Separate Push Button Station, 16" Double Blocks and 30 Ft. of ⅞" Cable.
FS-9646, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

Fire Hose - Double Jacket
2½" 35¢ — 3" 45¢ ft.
Couplings Extra
Write for complete details
HERCULES HOSE & RUBBER CO.
2315 N. 15th St., Phila. Pa.

FOR SALE
2 BAY CITY SHOVELS
Mod. 45 With crane boom and back hoe attachments—Reconditioned
N. D. MASELLI CORP.
Tel. Newburgh 2965 Newburg, N. Y.

YOUNG ENGINEERS SHOULD READ
"AUTOMOTIVE AND CONSTRUCTION EQUIPMENT"
$4.50 per copy
FOR SALE BY:
C. W. LINDGREN
8039 Lesner Avenue, Van Nuys, Calif.

BATESON-STOLTE
CLARK HILL POWERHOUSE
P. O. BOX 419 AUGUSTA, GA.
Telephone: COUNTY 5300

CONSTRUCTION EQUIPMENT

FOR SALE

Complete batching and mixing plant, including aggregate distribution and storage 90"x200' reclaiming tunnel with 27 bin gates, 2 Koehring Model 56SA 2-yard tilting mixers equipped with consistency meters, electric batchmeters and graphic recorders. One Model CA155 Nobel fully automatic batching plant including elevated 150 ton, 5 compartment aggregate bin, 2 cu. yd. weight hopper with central cement compartment, 6 beam back balance type scale and strip recorders for aggregate, water and cement. Track hopper for cement deliveries with screw and bucket conveyor system and elevated 500 barrel cement silo. Plant has mixed some 80,000 cu. yds. concrete. Available for immediate shipment.

1—American 10 ton stiffleg derrick Model 530, 30' mast, 12" bull wheel with Model 55G American double drum gasoline hoist.

1—Adams grader Model 511 with TD14 International Diesel Engine.

1—Hill Acme Cantol Shear #00 Alligator Shear, capacity 1½" round or square bars—3 HP Electric Motor and controls.

1—Wallace #47 fully automatic all hydraulic drive bar bender, capacity, cold bend 1-⅜" square, offset, 2 bends, 1 operation 1-¼", 7½ HP Electric motor and controls.

38 pumps—Gasoline, air and electric powered, sump, sewage, centrifugal, deep well, diaphragm, sludge, booster, and turbine types, portable and stationary.

Miscellaneous construction equipment—300 AMP Lincoln welder; 2—400 AMP General Electric welders; 3—miltiplex Model 50A saws; 1 Crescent HD 32" bandsaw; Fairmont Railway motor car; National car shaker; Rudamatic Model 1248 Tagline; 500 gallon Auburn Hot water boiler with storage tank; 1—Alemite portable lubrication unit; 1—24' Mulkey conveyor type portable elevator; Jaeger portable compressors, 365 and 315 cfm; 1—Gardner Denver 375 cfm stationary compressor Model WBH 4011; 2—1 yd. Hentzel hand operated size 10 concrete buckets and 5 Johnson 4-yd. low slump air operated buckets Model 405; miscellaneous boilermaker and concrete air tools; miscellaneous steel beams and columns, 27 WF 177#, 14 WF 167#, and 8", 12" and 14" WF beams.

For Sale or Rent
By One of America's Leading Allis-Chalmers Dealers

EUCLID 9BV LOADER powered by General Motors diesel. Hitch for HD 20 tractor. New belt and spare parts included. This machine is in near new condition having moved less than 350,000 cy. material: Current price of this machine delivered in New Jersey with new belt is approximately $36,128.00. Our price, $21,000.00.
If you need a loader it will pay you to inspect this one!

KOEHRING MODEL 205 (½ yd) Combination Shovel Backhoe, Powered by G. M. 271 Diesel $10,000.00.

4 WOOLDRIDGE TERRA COBRAS with 200 H.P. Cummins diesel engines: Fuller 2A112 transmissions — *all latest steering changeovers!* 24:00 x 24-24 ply tires in 80% condition. $8,500.00 each. Excellent Cond.

REX PUMPCRETE model 200 W. Double cylinder; agitator hopper with separate gasoline engine drive — mounted on top of machine. Several hundred feet 8" pipe & all fittings necessary to go right to work included. $10,000.00. Excellent condition, used on one small job.

Subject to Prior Sale or Other Disposition

For complete list contact

Frantz

45 Rockefeller Plaza *PLaza 7-3890* **New York 20, N. Y.**

FOR SALE
New and Used material—Immediate delivery from stock Angles, Channels, I and WF Beams, especially for Contractors needs

H BEAMS PILE SECTIONS

60 pcs 12" B P S 53# 60'
16 " 12" B P S 74# 75'
16 " 10" B P S 57# 67' 6"
34 " 10" B P S 42# 48'
23 " 10" B P S 42# 60'

Phone or Wire your steel requirements

We are also interested in purchasing your surplus material.
We assure you our prices will be the best obtainable.

HY DRACHMAN STEEL CORP.

Warehouse
14-23 34th Avenue, Astoria, New York
AStoria 8-4484 8-8023

Sales Office
563 East Tremont Ave., New York City, N. Y.
CYpress 9-5440

SALE or RENT

1—637 CFM Chi. Pneu. OCE Comp. dir-connected to 125 HP Syn. Motor, new 1944
1—45 Ton Clyde Whirley 100'B. 3/60/440V
1—5½ Ton B-S. Tandem Roller
1—½ Yd. Bay City Model 25 Crane
1—30 Ton Orion Diesel Loco. Crane
1—50 Ton Diesel Loco. Crane
1—20 Ton Bay City Model 180 Truck Crane
1—35 Ton P&H 355 Truck Crane, new 1952
1—25 Ton G.E. Diesel Elec. Loco.
1—30 Ton Davenport Diesel Locomotive
2—44 Ton G.E. Diesel Elec. Locos.
1—45 Ton G.E. Diesel Electric Locomotive
1—65 Ton Whitcomb Diesel Elec. Loco.

B. M. WEISS COMPANY
Girard Trust Company Bldg.
Philadelphia 2, Pa.

FOR SALE

48B BUCYRUS ERIE SHOVEL 2½ YDS.

Completely Overhauled
$24,000.
J. C. McDONALD
Box 143, Murdock 6-6600, Baltimore 20, Md.

FOR SALE

EXCEPTIONAL BUYS IN EXCELLENT USED EQUIPMENT

Barber Greene 879A* finisher, used two months
Galion 8-10 ton tandem roller, diesel, 2 yrs. old
Buffalo Springfield 8-12 ton diesel tandem roller, 2 yrs. old.
Cedar Rapids 3000E asphalt plant—late model & complete
Lima 1201 lift crane—late model & used only slightly
Cat. D8 tractor, in 10,000 series w/DDPCU & bulldozer, used 1000 hrs.
International TD9 tractor w/bulldozer—priced to sell
LaCrosse 25 ton lowboy trailer
Northwest 25 & 6 shovel and backhoe attachments

AL J. GOODMAN

DAY PHONE 3-6456 — P. O. BOX 263 ASHEVILLE, N. C. — NITE PHONE 5668

FOR SALE OR RENT
WILL CONSIDER RENTAL PURCHASE

4—Caterpillar Scrapers #80—Top Extensions—17½ yds. Struck. Tires, good to new.

6—D8 Caterpillar Tractors—All excellent and above 2U16000 Series, 900 to 1500 Hours.

3—D8 Tractors-Rebuilt this Spring-2U8000 Series.

3—D8 Tractors—Just completely rebuilt High 8R Series. All of these tractors were bought new by us and maintained and rebuilt by experts.

2—HD-20-G AC Tractors with 4 cu. yd. Front End Loaders, excellent machines. Output equals that of large shovel.

5—Euclids—Bottom Dumps 13-17 Yd. 43FDT 3 and 2 Identical. Rebuilt Machines.

2—LaPlante Choate C104 Scrapers. 26 cu. yd. Struck. Good Condition.

5—Euclids—End Dumps—Good Mechanically. Ready for Work.

1—No. 6 Northwest Shovel & Crane Comb. like new.

1—80D N/W Shovel. Engine & Machine just rebuilt. Guaranteed A-1. Serial 8724.

6—Euclid Scrapers 17-20 yd. 275 HP Engines. Less than one year old. All completely checked and repaired where needed by factory representatives.

2—HD-20 Tractors with Push Blocks and Power Control Units. Bought new last fall with above machines. Never used except as pushers.

1—Truck Crane 22B GM Diesel Engine Crane & Dragline with Buckets. New Machine.

2—Cat. #12 Motor Graders with cab, lights, etc. Late Models, excellent condition.

ALL LOCATED IN NEW YORK STATE

A. L. DOUGHERTY COMPANY
INDIANAPOLIS, INDIANA

Newburgh, N. Y.—Phone 6418—New York, N. Y.—HAnover 22387
Corfu, N. Y.—991

LOW COST INSTALLATION AND OPERATION

CABLEWAYS
IMMEDIATE SHIPMENT
ELECTRIC, STEAM or DIESEL
CAPACITY ½ to 20 TONS
SELL, RENT or BUY
AMBURSEN DAM CO. INC.
295 MADISON AVE NEW YORK

FOR DAMS BRIDGES BREAKWATERS FILTRATION AND SEWERAGE PLANTS
FOR SPEED ECONOMY EFFICIENCY FLOOD SAFETY LABOR REDUCTION

RAILS-TIES
TRACK ACCESSORIES
NEW and RELAYING

FOR IMMEDIATE DELIVERY

RAILS
NEW—RELAY

300 TONS	80#ASCE	NEW
500 TONS	90#ASCE	NEW
1600 TONS	90#ASCE	RELAY
400 TONS	90#ARA-B	RELAY
700 TONS	100#ARA-A	RELAY
900 TONS	110#AREA	RELAY

80# & 90# RAILS 30' to 33' with Angle Bars
100# & 110# RAILS 33' to 39' with Angle Bars

New Light Rails and Turnouts
Available for Prompt Delivery

MORRISON
RAILWAY SUPPLY CORP.
814 Rand Bldg. Buffalo 3, N. Y.
Mohawk 5820

PIPE
SURPLUS NEW and USED FOR SALE

Pipe Sizes ⅛" to 72" OD
PIPE, VALVES & FITTINGS
pipe piling • culverts • valves
specialists in prefabricating pipe
ALBERT PIPE SUPPLY CO., INC.,

CUTTING-THREADING-FLANGING-WELDING
BEVELING-BENDING-COILING-LINING
TO ALL STANDARD SPECIFICATIONS
"one call gets them all"
fittings • FLANGES • WELDING • IRON-STEEL
SPEEDLAY pipe systems
Berry at North 13 Sts., B'klyn, N. Y.

RAILS NEW AND RELAYING
TRACK ACCESSORIES
"FASTER FROM FOSTER"
Try us for all of your rail needs. We're buying daily — replenishing our stocks in all sizes. Complete stocks of All Track Tools & Accessories.

PIPE ✔ PILING ✔ WIRE ROPE & SLINGS
L. B. FOSTER CO.
Pittsburgh 30, Pa. New York 7, N.Y.
Chicago 4, Ill. Houston 2, Tex.

CLASS A-50
ASBESTOS CEMENT PIPE
18 in.. $1.50 ft.
(462 feet available)
20 in.. $2.00 ft.
(2684 feet available)
16.4 foot lengths
with Simplex Couplings
F.O.B. New Orleans
SUITABLE FOR WATER, OIL GAS OR SEWAGE
Can be seen in warehouse in New Orleans
WRITE, WIRE OR PHONE
THE CLARK-AIKEN CO.
LEE, MASSACHUSETTS

FOR SALE—*Immediate Delivery*
C.I. Water Pipe and Fittings—AWWA Standard

We specialize in pipe and fittings which are hard to get, having in stock such as the following:—
2000 linear feet 30" Class B—Pit Cast—Class B in 12 ft. lengths—Re-conditioned
5 Lengths 60" B&S Pipe, Cl. D. 12' long
3—60" x 24" Solid Sleeves, Cl. D.
1—60" B&S 45 deg. Bend, Cl. D.
20" to 36" B&S 45 deg. Bends
3" to 30" Y-Branches—Type 2

Also C. I. B&S Pipe from 2" to 36". C. I. Flanged Pipe from 3" to 24". Always on hand a complete line of C. I. Fittings—all sizes and kinds.

TAGCO, INC.
111 Front St. Hempstead, L. I., N. Y.
Tel.—Hempstead 2-5535 or 2-8857

NEW—RAILS—Relayers
All sizes and weights. Also frogs, switches, spikes, bolts, tie plates, contractors' and mine equipment carried in stock.
M. K. FRANK
480 Lexington Ave. Park Bldg.
New York, N. Y. Pittsburgh, Pa.
Reno, Nevada Carnegie, Pa.

PIPE
VALVES and FITTINGS
All Sizes in Stock
NEW—USED
GREENPOINT IRON & PIPE CO. INC
Bogart and Stagg Streets Brooklyn, N.Y.

RAILROAD Cross and Switch **TIES**
Promptly from adequate stocks
NEW and USED *(as available)*
GILLIS & COMPANY
29 East Madison St. Chicago 2

When you need
PIPE . . . fast
use this section, as many contractors do, as a pipe buying directory. It can save you time when you want to know, quickly, where to buy good new or used pipe.

RAILS
NEW — RELAYING — TRACK ACCESSORIES
MIDWEST STEEL CORP.
502 DRYDEN STREET
CHARLESTON, W. VA.
IMMEDIATE DELIVERY

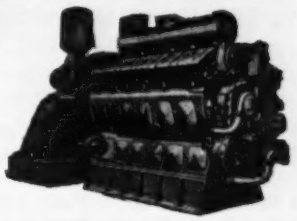
FOR SALE or RENT

1½ yd Manitowoc 3000B Diesel Crane. 80' bm. Cummins eng. Long Tracks.
1½ yd Koehring 605 Diesel Crane 140' bm. GM Diesel. Long Tracks.
30 ton Industrial Brownhoist Gas Locomotive Crane. 70' bm.
44 ton GE Diesel-Elec. Loco. new 1951.
25 ton GE Diesel-Elec. Loco. new 1950.
30 yd Western & Koppel Air Dump Cars. Lift Doors. Side Aprons.
½ yd Link Belt LS50 Backhoe-Crane.
30 ton Stiffleg Derrick & 3D Hoist.
750 CFM G-D Compr. 125 HP Motor.
130 HP Christian 2D Diesel Hoist.
60 ton Clyde Elec. Revolver or Gantry.

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust Street St. Louis 1, Mo.

DIESEL POWER

IMMEDIATE SHIPMENT
• PURCHASE OR RENTAL
UNIT CAPACITIES—10 TO 2475 KVA
A.C.—50 AND 60 CYCLES
• ALSO D.C. UNITS



A PARTIAL LISTING OF OUR INVENTORY

KW	Make	Model	HP	RPM	KW	Make	Model	HP	RPM
1980	Nordberg	TS-217	2800	225	320	Enterprise	DSG-6	560	450
1136	Fairbanks Morse	38D	1600	720	300	General Motors	8-268A	450	1200
1100	General Motors	16-278A	1600	720	200	General Motors	6-268A	350	900
750	General Motors	12-567	1080	720	150	Worthington	CC-4	225	450
500	Baldwin	VO-8	750	514	150	Ingersoll-Rand	8-4	225	600
500	General Motors	8-278A	750	720	150	Buckeye	80	240	600
500	General Motors	8-567	720	720	100	Worthington	BB-5	150	600
480	Worthington	DD-8	700	360	100	General Motors	3-268A	150	1200
400	Ingersoll-Rand	8-8	600	720	60	General Motors	6-71	90	1200
350	Baldwin	VO-6	510	450	30	Internat'l Harvester	UD-14	45	1200

A. G. SCHOONMAKER COMPANY, INC.
ENGINE DIVISION, 50 CHURCH ST., NEW YORK 7, N. Y.

FOR SALE

DIESEL ELECTRIC LOCOMOTIVES

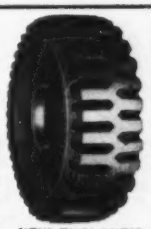
STANDARD GAUGE

1—25 ton—1947—150 HP
1—44 ton—1943—380 HP
1—70 ton—1948—600 HP
2—120 ton—1947—1000 HP

EXCELLENT CONDITION

Frank M. Judge & Co., Inc.
7010 Empire State Bldg. N. Y.

Army Surplus TIRES



Biggest Money Saving Values Offered. Truck Grader — Tractor — Implement. Suitable For Construction, Mine, Loggers, & Re-conversion— New & Slightly Used.

NEW ENGLAND'S GREATEST TIRE BARGAIN CENTER

*Slightly Used—Excellent Condition

600/20	6 Ply Hi-way Tread	$10.00
750/16	8 Ply N.D. Tread Tire and Tube	25.00
750/16	8 Ply Hi way Tire and Tube	22.50
750/20	8 Ply N.D. Tread	13.95
825/20	14 Ply N.D. Combats	45.00
825/18	10 Ply N.D. Tread	25.00
825/15	12 & 14 Ply L.B. Trailer	45.00
1000/15	12 Ply L.B. Trailer	22.50
900/20	10 Ply N.D. Tread	29.95
900/20	14 Ply N.D. Combats	39.95
1100/20	12 & 14 Ply N.D. Tread	39.95
1100/20	12 Ply Hi-way Tread	34.95
1200/20	14 & 16 Ply N.D. Tread	34.95
1200/24	14 Ply Hi-way Tread	79.95
900/16	8 Ply N.D. Tread	12.95
1400/24	16 Ply Hi-way Tread	65.00
1400/24	20 Ply N.D. Tread	75.00

Every tire in perfect condition with 50 to 90% original tread.

NEW TRUCK & EQUIPMENT TIRES

600/20	6 Ply Hi-way Tread	$14.95
†700/16	6 Ply N.D. Tread	23.95
750/16	8 Ply Hi-way Tread Tire & Tube	30.00
†900/16	8 Ply N.D. Tread	39.95
750/15	10 Ply Tire & Tube	49.95
900/15	16 Ply L.B. Trailer	90.00
750/17	6 Ply N.D. Tread	29.95
1400/24	16 Ply Hi-way Tread	125.00
1200/24	8 Ply Grader	85.00
1100/20	12 Ply N.D. Tread	91.00

†Seconds—all others 1st's

Tires shipped everywhere—25% with orders—fob Everett, Mass. call, wire or write—inquiries promptly answered.

TIRE SALES & SERVICE CO
71 Main St. Everett 49, Mass. EV-9-9485

FOR QUICK, DEPENDABLE

COMPRESSOR SERVICE

AMERICAN AIR of JERSEY

GAS • DIESEL • STEAM • ELECTRIC

SELL—BUY—TRADE—RENT—REPAIR

A RENTAL COMPRESSOR FOR EVERY JOB

60 CFM Worthington (GAS) Portable
70 CFM Smith (GAS) Portable
89 CFM 6 x 7 Worthington HB, 15 HP Elec
105 CFM Ingersoll (GAS or OIL) Portable
107 CFM 7-7 x 7 Ingersoll FS-1 STEAM
129 CFM 7½ x 7 American AP-1, 20 HP
160 CFM Worthington (GAS) Portable
165 CFM Smith 110SR Semi-Portable, 25 HP
194 CFM Worthington Semi-Portable, 40 HP
195 CFM 8-9 x 9 Worthington HS STEAM
210 CFM Worthington (GAS or DIESEL) Port
211 CFM 9 x 9 Worthington HB, 40 HP Elec
279 CFM 11-10 x 11 Worthington HS STEAM
294 CFM 10 x 12 Worthington HB, 50 HP
315 CFM Worthington (GAS or DIESEL) Port
388 CFM Worthington Semi-Portable, 75 HP
445 CFM Gardner Semi-Portable 75-100 HP
462 CFM 12-14½ x 13 American AF-S STEAM
500 CFM Worthington (DIESEL) Portable
538 CFM Worthington Semi-Portable, 100 HP
600 CFM Worthington (DIESEL) Portable
628 CFM 14 x 13 Ingersoll ES-1, 100 HP

MANY OTHERS TO CHOOSE FROM
GUARANTEED PERFORMANCE
COMPRESSORS SINCE 1902

AMERICAN AIR COMPRESSOR CO.
Dell Ave. & 48th St. North Bergen, N. J.
UNion 5-4848

Pile Driving Equipment

Vulcan and McKiernan-Terry
Steam Pile Hammers and Extractors
Pile Driving Accessories
Drop Pile Hammers and Caps
Steel Sheet Piling

CONTRACTORS MACHINERY Co.
2637 Southwest Blvd. Kansas City 8, Mo.
Phone Valentine 4740

NEW AND REBUILT
STORAGE BATTERY
LOCOMOTIVES

1½ to 10 Ton — 18" to 56" Track Gauge
GREENSBURG MACHINE CO.
Greensburg, Penna.

20 Ton American Guy Derricks
10-25-40-80 ton Stiff Leg Derricks
3 Drum Steam Hoist 12 x 14 Cylinders
3 Drum Elec Hoist 100 H. P. Motor
2 Yd Bucyrus Erie 50-B and Marion 480 steam powered cranes
1½ Yd ☐6 Northwest Dragline
2½ Yd Link Belt Shovel
Locomotive Cranes, Deck Scows, Wood and Steel

STONE THE CRANE MAN
1132 Prudential Bldg. Buffalo 2, N. Y.

FOR SALE
BEARING PILES

76 Pieces 10" BP 42# 48'0
26 Pieces 12" BP 53# 62'0
7 Pieces 21" WF 73# 42'0

QUEENSBORO STEEL CORP.
P. O. Box 1376 Wilmington, N. C.
Phone 5528—5111

NEW LeTOURNEAU TOURNADOZER

(Demonstrated 85 Hours)

New Machine Parts Warranty Applies

Latest Model—With Torque Converter
Down Pressure Blade—Cab & Heater
Will Sacrifice—Make Us An Offer

WALKER MACHINERY CO.
CHARLESTON, W. VA.

LOCOMOTIVES

1—Plymouth—8 Ton 30" Ga.—Gas.
3—Whitcomb—15 Ton—36" Ga.—Diesel.
2—Plymouth 8 Ton Gas. Std. Ga.
2—G.E. 44 Ton—Heavy Duty Diesel Elec.—1951.
Plymouth 30 Ton Diesel—Std. Ga. #4739.
2—G.E. 25 Ton—Diesel-Elec.—1951.
Brookville 6 Ton—36" Ga. Diesel.
1—Brookville 3 Ton—Gas—24" Ga.—#3042.
1—Whitcomb 35 Ton—ST. Ga—Diesel Electric, #60002.

2—HOPPER CARS—50 TON
SOUTHWARK 500 TON HYDRAULIC PRESS—HIGH-SPEED—LIKE NEW

2—Conway Mod. 75 Muckers, #256 & #305.
Southwark 100 Ton Hydraulic Press.
Mundy 2-Drum Elec. Hoist—300 H P. Like New.
Bridgeford Axle Lathe. 10—50 Ton Hopper Cars.
Orton 30 Ton Diesel Locomotive Crane. Modern.
Browning 25 Ton Gantry—230 D.C.
2—Washington 45 Ton Gantry—3—60—440.

R. H. BOYER
2005-13 W. Bellevue St. Phila. 40, Pa.
Phone Sagamore 2-7132

SURPLUS EQUIPMENT
FOR SALE OR RENT
With Option to Purchase
Rebuilt—A1 Condition

1 48B Bucyrus Erie Shovel 2 cy diesel
1 Model 6 N.W. Shovel 1½ cy diesel
1 Caterpillar D8 Bulldozer
1 New Shovel Front for Model 6 N.W.
1 Used Shovel Front for Model 25 N.W.

WILLIAMS CONSTRUCTION COMPANY
Box 145 Balto, 20, Md. Phone—Murdock 6-6600

FOR SALE
2—Current Model "Caterpillar" Tractors

1—model D8 "Caterpillar" tractor, 2U serial number, with new track, sprockets, idlers, rollers, in excellent condition. This tractor has been a hauling unit and has canopy top, industrial type push plate and "Caterpillar" model #25 double drum rear power control unit. Price, f.o.b. Detroit, Michigan, $10,350.

1—model D8 "Caterpillar" tractor, 2U serial number, with "Caterpillar" rear power control unit, new "Caterpillar" 8S bulldozer blade, new track, excellent condition—$12,275.00 f.o.b. Detroit, Michigan.

MICHIGAN TRACTOR & MACHINERY CO.
13801 Lyndon Ave. Detroit 27, Mich.

For Rent

SPEEDCRANES
LATE MODELS

Manitowoc Diesel Powered Speedcranes for rent. 25, 40 and 60 ton capacities with booms 100' or more, 20' and 30' jibs. Special price on long rentals.

FORSYTHE EQUIPMENT CO., INC.
37-11 Vernon Blvd. Long Island City, New York
Tel. STillwell 4-1030

SHOVEL FRONT
For MARION Model #111M Stripper
45' Boom, 34' Sticks, 3½ Yd. Dipper
Price $10,000.00

ANDERSON EQUIPMENT CO.
Box 1737 Pittsburgh 30, Pennsylvania
Phone: LEhigh 1-6020

FOR SALE
SIX—500 CU. FT. INGERSOL-RAND DIESEL DRIVEN AIR COMPRESSORS
Mounted on Pneumatic Tires—Good Condition
CONTRACTORS TRADING & EQUIPMENT CORP.
232 FULTON ST - N.Y. 7, N.Y. BArclay 7-3940

FOR RENT
3—Brand New Manitowoc 3000B Cranes
with 2 yd shovel fronts
DICK CONSTRUCTION COMPANY
Large, Penna. (Pgh. District) Elizabeth 1290

PILING
SURPLUS NEW and USED For Sale or Rent

We do a Nation-Wide business in
STEEL SHEET PILING
IMMEDIATE SHIPMENT

1900 pcs. 72-16 ft. Carn. MP-101-West Coast
184 pcs. 60-50 ft. M-116 & M-115-Illinois
95 pcs. 60-30 ft. Beth. DP-2-New York
139 pcs. 30 ft. Inland I-23-Kentucky
112 pcs. 40 ft. Larson 11-Alabama

Other lengths & sections used & new at other locations in United States for rent.
We have Nation-wide reputation for effecting QUICKEST SHIPMENTS
All sizes Vulcan & McKiernan Pile Hammers & Extractors for rent—Shop Rebuilt
Regardless of location of job, Wire, Write, or Phone

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., Chestnut 4474 St. Louis, Mo.

STEEL SHEET PILING
260-Pcs. 39-40 Ft. M-115 So. Dokato
350-Pcs. 35-39 Ft. M-112 Kansas City
100-Pcs. 30-35 Ft. I-27 Kansas City
107-Pcs. 24-65 Ft. M-112 North Dakota
200-Pcs. 27-30 Ft. M-116 Kansas
100-Pcs. 24-25 Ft. M-115 Kansas
100-Pcs. 17-20 Ft. M-112 Kansas City

Available for prompt shipment
Other lots at various locations

CONTRACTORS MACHINERY COMPANY
Phone Valentine 4740
2637 SW Blvd Kansas City 8, Mo.

FOR RENT
Manitowoc Speedcranes

Models 2000-B or 3500 — 25 T. to 60 Ton Capacity — 50' to 125' booms — 20' or 30' jibs — manual controls — independent booms — torque converters —

McCARRICK BROTHERS Inc.
1700 E. Ridge Pike P. O. Box 291
Norristown, Penna. Phone 8-4231

CONTACT SULPHURIC ACID PLANT TO BE COMPLETELY DISMANTLED
BUILDINGS, EQUIPMENT, VALVES, INSTRUMENTS, ETC.
Call, Write or Visit
BALTIMORE CONTRACTORS, INC.
(at DuPont Grasselli Plant)
LINDEN, N. J. PHONE: HUnter 6-0992

RENT STEEL SHEET PILING

"Faster From Foster"—the exact lengths and sections — all standard makes—of Rental Piling to meet your job needs. Also Rent: Pile Hammers and Pile Extractors.

RAILS • TRACK ACCESSORIES • PIPE • WIRE ROPE
L.B. FOSTER CO.
Pittsburgh 30, Pa. New York 7, N.Y.
Chicago 4, Ill. Houston 2, Tex.

STEEL SHEET PILING
900 TONS ALGOMA B6—30 FT. CANADA
300 PCS. U.S. MP-101—Y-PCS. 56 FT. IN ILL.
498 PCS. U.S. MP-101—56 FT. IN ILL.
150 PCS. U.S. M-116—45 FT. IN FLA.
244 PCS. BETH. DP-2—25 FT. IN N. Y.
382 PCS. BETH. AP-3—20/25 FT. IN PA.
128 PCS. BETH. DP-2—60 FT. IN OHIO
188 PCS. BETH. DP-2—40 FT. IN N. J.

FOUNDATION EQUIPMENT
E-4 McK. TERRY PILE EXTRACTOR
15 McK. T. HAMMERS 11B3—10B3—S8— S5 & No. 5
9½ x 10 LAMBERT 3 DRUM STEAM HOIST

R. C. STANHOPE, INC.
60 E. 42nd St. N. Y. 17, N. Y.

1 Practically new model 845 Barber-Greene black top plant
including

Model 845 Mixer,
Model 811-A Fines Feeder,
Model 865 gradation unit,
Model 835 dryer,
Model 852 dust collector,
Model 815 4-aggregate cold bin.

Price reasonable. Plant practically new: mixed 32,000 tons only. This can be purchased with or without a new or used Barber-Greene finishing machine. For complete detailed information write or telephone:

Allied Construction Equipment Co.
4015 Forest Park Ave., St. Louis 8, Missouri
Telephone: Franklin 1818 or 7132

FOR SALE
STEEL SHEET PILING
AT CHIEF JOSEPH, WASHINGTON
Shipped New—Used Only One Job

CARNEGIE Length	MP-101 Pcs.	MP-102 Pcs.	TEES Pcs.
72-65 ft.	105	100	2
65-60 ft.	210	50	9
60-50 ft.	210	5	18
50-45 ft.	290	2	7
45-40 ft.	120	1	13

Also quantity shorter than 40 ft.—Quick shipment regardless of job location, write, wire or phone.

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., CHestnut 4474, St. Louis 1, Mo.

When you need PILING . . . fast

use this section, as many contractors do, as a piling buying directory. It can save you time when you want to know, quickly, where to buy good new or used piling.

LATEST MODEL
EQUIPMENT BARGAINS

1953 Wayne Pullshovel—Crane—Dragline Model 66 half-yard capacity, 24 in. crawlers, Waukesha Engine, 2-speed transmission, new July, used two months.

Two Cleveland Model 140 Trenchers, Option 4, new May, 1953, used three months.

One WK-80 Joy 315 two-stage Air Compressor on four pneumatic-tired wheels, with International Harvester Diesel Engine. New machine that was in rental service only, in guaranteed mechanical condition.

All above at a saving of about 40-50% of the price new. Subject to prior sale.

HUNTER TRACTOR & MACHINERY CO.
327 So. 16th Street Milwaukee 3, Wisconsin

PROFESSIONAL SERVICES

NEW ENGLAND

Jackson & Moreland
Engineers and Consultants
Utilities and Industrials
Design and Supervision of Construction
Reports—Examinations—Appraisals
Machine Design—Technical Publications
Boston — New York

Metcalf & Eddy
ENGINEERS
Investigations — Reports — Design
Supervision of Construction
and Operation
Management — Valuation — Laboratory
1300 Statler Building, Boston 16

MIDDLE ATLANTIC

Edwards, Kelcey & Beck
Reports, Design Supervision, Expressways, Port & Harbor Works, Terminals, Tunnels, Bridges, Water Supply, Industrial Plants, Traffic and Management Studies.
3 William Street, Newark 2, N. J. — 250 Park Avenue, New York 17, N. Y.

When you need a SPECIALIST in a hurry . . .
Engineering News-Record's Professional Service Section offers the quickest, most direct method of contacting consultants who may be available NOW.

Porter, Urquhart & Beavin
O. J. Porter & Co.
Consulting Engineers
Airports-Highways-Dams-Structures
Foundations-Stabilization-Pavements
415 Frelinghuysen Ave., Newark 5, N.J.
76 Ninth Ave., New York 11, N. Y.
3568 West Third St., Los Angeles 5, Calif.
516 Ninth St., Sacramento 14, Calif.

Ammann & Whitney
Consulting Engineers
Design — Construction Supervision
Bridges, Buildings, Industrial Plants, Special Structures, Foundations, Airport Facilities, Expressways.
76 Ninth Avenue, New York 11, N. Y.
724 E Mason Street, Milwaukee 2, Wis.

Preload Engineers Inc.
Founded - 1934
Consultants in Prestressed Design
Designers of more than 800 prestressed concrete bridges, buildings, tanks and high pressure pipe lines erected in North America since 1934.
Curzon Dobell — *E. H. Thwaits*
Eric Molke — *Cedric Steiner*
955 North Monroe Street, Arlington, Va.

Severud-Elstad-Krueger
Consulting Engineers
Structural Design - Supervision
Reports - Buildings - Airports
Special Structures
415 Lexington Avenue
New York 17, N. Y.

Albright & Friel, Inc.
Consulting Engineers
Water, Sewage and Industrial Waste Problems. Airfields, Refuse Incinerators, Power Plants, Industrial Buildings, City Planning, Reports, Valuations, Laboratory.
121 So. Broad St., Philadelphia 7, Pa.

Frederick H. Dechant
Consulting Engineer
Chairman of the Board,
Frederic R. Harris Inc.
Water Works, Industrial Wastes, Sewerage, Recovery Processes, Hydraulic Works, Gas Plants
Phila.: Fidelity Phila. Trust Bldg.
New York: 27 William St.

SOUTH

Duval Engineering & Contracting Co.
General Contractors
FOUNDATION BORINGS
For Engineers and Architects.
Jacksonville, Florida

Rader Engineering Co.
Water Works, Sewers, Refuse Disposal, Ports, Harbors, Flood Control, Bridges, Tunnels, Highways, Airports, Traffic, Foundations, Buildings, Reports, Investigations, Consultations.
111 N.E. 2nd Ave., Miami 32, Florida

THIS SECTION is available to consulting engineers to contact prospective clients every week or every other week.

MIDDLE WEST

Consoer, Townsend & Associates
Water Supply, Sewerage, Flood Control & Drainage, Bridges, Express Highways, Paving, Power Plants, Appraisals, Reports, Traffic Studies, Airports, Gas & Electric Transmission Lines.
351 East Ohio St., Chicago 11, Illinois

FAR WEST

International Engineering Company, Inc.
ENGINEERS
Investigations - Reports - Design
Procurement - Field Engineering
Domestic and Foreign
74 New Montgomery St.
San Francisco 5, California

MARINE DIVING

Walter Detrick
Marine Diver
Construction • Repair • Salvage
Quincy, Illinois
9806 Phones 750

INSPECTION & TEST

Johnson Soils Engineering Laboratory
Engineering design and construction tests run from MOBILE LABORATORY UNITS at construction site. Field load bearing tests.
193 West Shore Ave., Bogota, N. J.
Bogota-Hubbard 7-4408

ALWAYS READY
Yes, these consultants are always ready to help you with any problem concerning engineered construction. Call on them with the assurance that you will be receiving the finest of professional advice.

SEARCHLIGHT SECTION

SURVEYING INSTRUMENTS
USED • REBUILT • SALE • RENT • REPAIRING

FROM STOCK
Brand New & Rebuilt
TRANSITS & LEVELS
Fully equipped modern shop—all makes and models repaired — all work guaranteed — instruments rented
Midwest Representative: W. & L. E. Gurley
NATIONAL BLUE PRINT CO.
Established 1914.
210 S. Canal St. — Chicago (6), Ill.

SPECIALIZED REBUILDING
of surveying and engineering instruments.
All makes and models expertly repaired in modern shop. All work guaranteed.
USED REBUILT INSTRUMENTS
for sale or rent
ROY D. HICKERSON
8 N. EDMONDSON AVE. INDIANAPOLIS 19, IND.

CONTRACTORS —
Contact these advertisers for new or used surveying instruments
They will also repair damaged or inaccurate instruments.

TRANSITS and LEVELS

NEW OR REBUILT
SALE OR RENT
HEADQUARTERS FOR REPAIRS — any make
We will buy or trade in old Transits, Levels, Alidades, etc. Send instruments for valuation.
Write for Catalog NR-311 of new engineering Instruments, Engineering Field Equipment and Drafting Room supplies and NRL-311 for list of *rebuilt* instruments.
WARREN-KNIGHT CO.
Mfrs. of Transits & Levels
136 N 12th St. - Philadelphia 7 Pa.

RE-BUILT REPAIR RENT REAL EXPERTS
BUFF
ALL MAKES

60 Day St., New York

Our Craftsmen do
INSTRUMENT REPAIR AND OVERHAUL

- Complete department—handles all makes.
- Experienced craftsmen do all work.
- Includes thorough overhaul, cleaning, oiling and adjustment.
- Precision work guaranteed.

DAVID WHITE COMPANY
317 W. Court St. • Milwaukee 12, Wis.

INSTRUMENTS FOR RENT
We rent transits and levels on a monthly or yearly basis. Reasonable rates. All instruments are fully guaranteed in first class working order.
DAVID WHITE COMPANY
317 W. Court St. • Milwaukee 12, Wis.

TOP OF THE A-FRAME is 85 ft above the water line. View from this point shows the reeving arrangement employed on the Air Force's largest floating crane. The Bureau of Yards and Docks is supervising construction of six of these floating cranes.

Big one for the AF

First of Air Force's large floating cranes completes performance trials

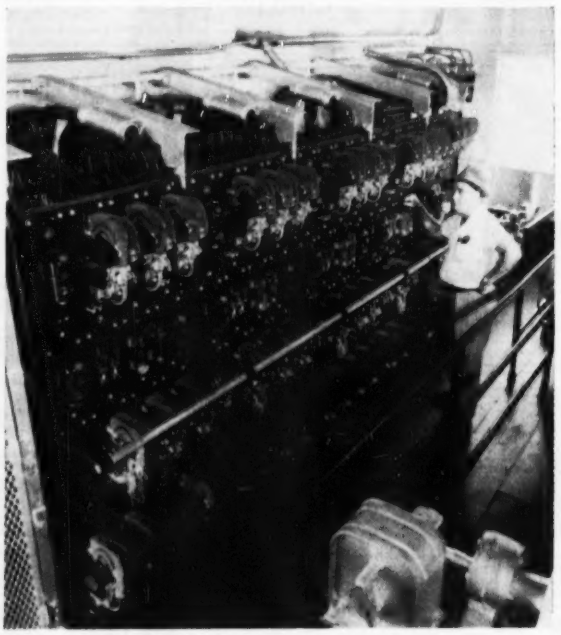
A 56-ton floating crane, built under the supervision of the Bureau of Yards and Docks, recently completed performance trials at Port Deposit, Md. The first of six to be delivered to the Air Force, it is reported to be the largest crane built for that branch of the service.

Mounted on a steel barge 144 ft long and 64 ft wide, the crane clearance is 85 ft over the A-frame and has a truss-type boom 145 ft long with three load hooks. The main hook will handle 56 tons at 115-ft radius; the auxiliary hook, 16.8 tons at 130-ft radius; the whip hook 5½ tons at all radii. At minimum radius the boom towers 175 ft above the water line.

A 32-ft dia circular gear rack rotates the crane through 360 deg; 60 beveled rollers on machined roller paths provide support.

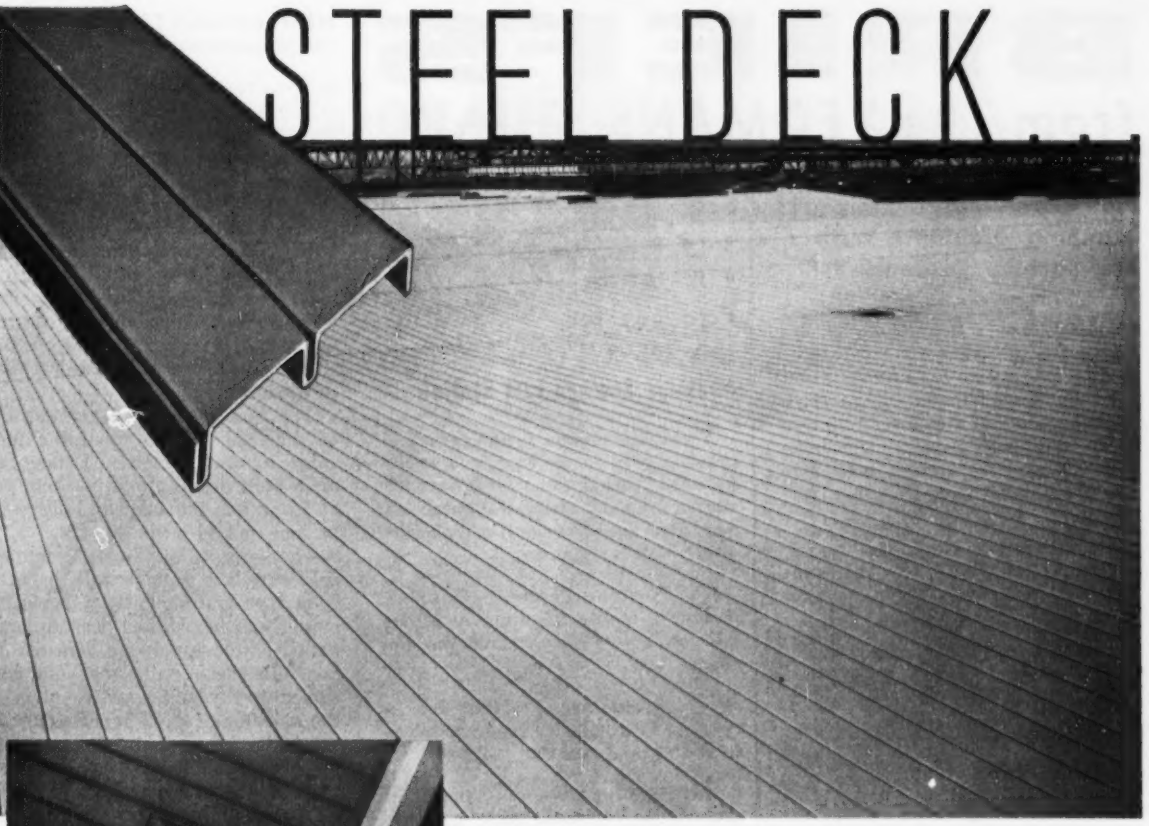
A 250-hp, 150-kw, 230-v diesel-generator set powers four hoists—each driven by its own 65-hp direct current motor. The boom luffing hoist has a maximum line pull of 41,000 lbs at 60 fpm; the main hoist 41,000 lbs at

MAXIMUM LOAD of 56 tons (50 long tons) is swung at 115-ft radius during performance trials. A radius calculator in the control cab permits the operator to compensate for barge list.



NERVE CENTER of the big rig is this control panel. Each of the four hoists is driven by individual 65-hp DC motors; gearing to the hoists is direct and clutches are thereby eliminated.

STEEL DECK...

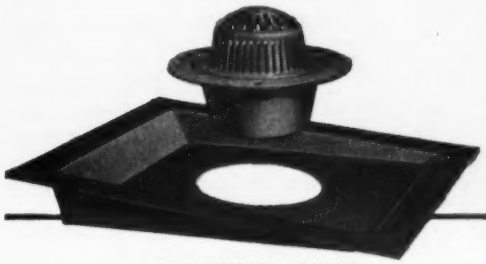


BUILT-UP SADDLES ELIMINATED

Built-up saddles are eliminated in Steel Deck Roofs. Purlins can be set to create valleys at sump locations in the drainage area. Steel Deck can be warped to conform. No additional deck plates are required—no cutting, fitting or bending necessary.

Specified for a Greater Percentage of New Construction Every Year!

The inherent advantages of Steel Deck have gained for it a universal preference for roof construction in both industrial and commercial type buildings. Year after year it is specified for a greater percentage of new construction. There's a reason for this . . . Steel Deck is the most economical and most practical, permanent, firesafe material available for roof construction today. Steel Deck's light weight permits substantial savings in the supporting structure—total dead load, including insulation and waterproofing material, is less than any other type of permanent roof construction. And, important too, Steel Deck can be installed in any kind of weather . . . and it can be insulated to the exact degree to meet "U" Factor requirements in any given locality. Mahon Steel Deck is available in Galvanized Steel, Enamel Coated Galvanized Steel, or Enamel Coated Black Steel. Stiffening ribs are vertical—no angular or horizontal surfaces where troublesome dust may accumulate. In the enamel coating process, the metal is chemically cleaned, phosphated, and treated with a chromic acid solution to provide paint bond, and the protective coating of synthetic enamel is baked on at 350° F. prior to roll-forming. Investigate these extra-value features of Mahon Steel Deck . . . See Sweet's Files for complete information, or write for Catalog B-54-A.



SUMP RECESSES and SUMPS

Mahon Roof Sump Recesses for use with Mahon Steel Deck can be furnished to fit any roof pitch. Mahon Cast Iron Sumps can also be furnished for 4", 5", and 6" conductors.

THE R. C. MAHON COMPANY

Detroit 34, Michigan • Chicago 4, Illinois • Representatives in all Principal Cities

Manufacturers of Steel Deck for Roofs, Partitions, and Permanent Concrete Floor Forms; Insulated Metal Walls of Aluminum, Stainless or Galvanized Steel; Insulated Metal Wall Panels; Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Fire Doors and Shutters.

MAHON

BRIEFS from The YEOMANS GUARD

How To Avoid Pumping Problems With Sub-Surface Drainage

A vast amount of trouble can be avoided—where a sump pump handles sub-surface drainage—if provision is made for a settling basin to settle out sand and grit. Without such a basin the sand and grit flow directly into a pump that was never intended to handle them—and serious damage to the pump bearing is almost a certainty.

It's a good way to prolong the life of a good pump. We have a simple installation diagram—yours on request.

☐ Please send settling basin installation diagram.

Pittsburgh's Mellon Bank has a financial genius in the basement

Not all the investment wizardry and financial acumen of the Mellon National in Pittsburgh is limited to the spacious dignity of executive office.

Down in the basement, unseen and unsung, is a faithful worker with as canny a sense of money, as sound a judgment of investments, as you'll find top-side: A Yeomans Sump Pump installed in 1922. It handles the cooling water from the air conditioning system, and the drainage normal to any big building.

For 31 years that pump tended to its job—never out of the put; until the engineer decided it might be well to inspect it, before another summer with its peak load on the air conditioning equipment.

Isn't that the kind of faithful performance you hope to get from any mechanical equipment? There's a sure way to get it.

☐ Please send Bulletin 3-8000

easy
- to select
- to install
- to pay for

this NEW Package Sewage Lift Station

A practical answer to an urgent and growing need for a low-priced, easily installed "package" dry pit sewage lift station for small residential units: our new "Package" Sewage Ejector Series 6280.

No Selection Problem—A simple matter to choose the right model by *population to be served* and the discharge head.

No Installation Problem—It's a "package"—complete, ready to place in the pit and connect.

No Payment Problem—simple in design, standardized, this compact unit is low priced, easy to pay for.

See Bulletin 6251, page 8.

☐ Please send Bulletin 6251.

These stories, and others, are told in full in our periodical, The Yeomans Guard. It's full of news and useful information about the pumping of materials and the treatment of wastes, both domestic and industrial. A copy of the current issue is yours for the asking. Contact your local Yeomans Representative—listed in the telephone book yellow pages under "Pumps"—or write direct.

YEOMANS BROTHERS COMPANY

1999-1 N. RUBY STREET, MELROSE PARK, ILLINOIS

Manufacturers of: Centrifugal Pumps and Pneumatic Ejectors for Buildings, Municipalities, and Industrial Applications, and a Full Line of Waste Treatment Equipment.

NEW PRODUCTS

60 fpm; the auxiliary hoist 18,000 lbs at 100 fpm and the whip hoist 12,700 lbs at 130 fpm.

It is pointed out that the main advantage of individual motor drives for the hoists is that the drums are directly geared to the motors; therefore, the hoists can be safely handled even by an inexperienced operator. An electric brake automatically holds the load when stationary, dynamic electric braking eases the load down and hoisting is automatically accelerated according to the load.

The hoist drums are grooved and of sufficient size to spool the individual ropes in one layer. Luffing and main hoist drums are 96 in. long and 66 in. in dia; the auxiliary hoist is 76 in. long and 44 in. in dia.

The hoisting and rotating motors are controlled through full magnetic crane type control panels. The electric master switches located near the magnetic control panels are actuated by hydraulic slave units that are controlled by hydraulic master units in the operator's cab. The advantage of the hydraulic arrangement is said to lie in the fact that 55 control wires for five master switches are replaced by 10 hydraulic tubes. Further, the master units in the operator's cab can be grouped in a more compact, convenient arrangement.

A new design of radius indicator installed in the operator's cab automatically records the change in radius of the load hook due to the list of the barge when swinging over the side thus indicating overloading.

A main switchboard mounts rheostats and indicating instruments for the generators and distribution breakers for various circuits. Power for lighting and small motor operation is derived from a 10-kw, 120-v generator driven by the main diesel engine. An auxiliary diesel drives a second 10-kw, 120-v generator for lighting and an air compressor for charging the starting air tanks on the main diesel engine. Lighting includes deck flood lights, navigation lights and a 1,500-watt searchlight on the operator's cab.

Within the hull of the barge are tanks for 8,000 gal of fresh water and 2,000 gal of diesel fuel. The large amount of water storage was required to enable the floating crane to supply auxiliary vessels and equipment.

The complete design and construction of this crane and the five to follow is the responsibility of the Wiley Mfg. Co. an affiliate of the Barium Steel Corp., 25 Broad St., New York 4, N. Y.

(*New Products continued on p. 160*)

One lever controls

8 FORWARD SPEEDS

TWO REVERSE SPEEDS

NO GEAR-SPLITTING!

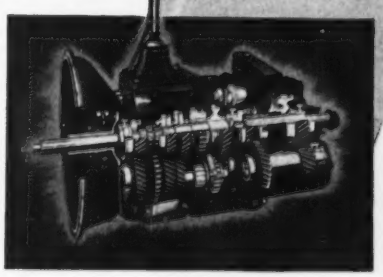
New MODEL R-45 ROADRANGER®

Now 125-160 hp rigs can have the advantages of the new R-45 ROADRANGER Transmission

The famous one-stick Fuller ROADRANGER is now available for rigs powered by engines delivering up to 385 pounds-feet of torque.

With the new R-45, gear-splitting is entirely *eliminated*. Shifts are simple, short, and fast, with only one power shift in the whole series. Yet you have 8 forward speeds—available in *equal*, progressive, selective steps, none exceeding 38%—to keep your engine *always* turning in its most efficient range.

With this transmission, there's no more engine lugging, no more low rpm between shifts. With the Fuller ROADRANGER, you can haul more, and maintain higher average speeds than ever before—with so much better utilization of horsepower that you make 1/3 fewer shifts. Write today for full information on the new Fuller R-45 ROADRANGER.



Check These Advantages:

● Easier, quicker shifts—38% steps—one shift lever controls all 8 forward speeds ● No gear-splitting—8 selective gear ratios, evenly and progressively spaced ● Higher average road speeds — engine operates in peak hp range with greater fuel economy ● Less driver fatigue—⅓ less shifting ● Range shifts pre-selected—automatic and synchronized ● More compact than other 8-speed transmissions ● More cargo can be carried on the payload axle.

VITAL STATISTICS

GEAR RATIOS:

Low Range		High Range	
1st	9.78	5th	2.66
2nd	6.98	6th	1.90
3rd	4.99	7th	1.36
4th	3.68	8th	1.00
Reverse	11.01	Reverse	2.99

Installation Length . . . . . 29⅛"
Clutch Housing Sizes . . . . . SAE 1, 2, 3
Weight, with Standard Controls . 457 lbs.

Fuller® TRANSMISSIONS

FULLER MANUFACTURING COMPANY (Transmission Division), KALAMAZOO 13F, MICHIGAN

Unit Drop Forge Division, Milwaukee 1, Wis. • WESTERN DISTRICT OFFICE (SALES & SERVICE—BOTH DIVISIONS), 641 E. 10th Street, Oakland 6, Calif.

SYMONS

4 Point PLAN

FOR LOW-COST CONCRETE WALL CONSTRUCTION

The Forming System, Engineering Service, Sales Service and Rental-Purchase Plan which make up the Symons 4-Point Plan are ready to go to work for you—regardless of the complexity or size of the application.

1 SYMONS FORMING SYSTEM

. . . includes strong, long-lasting panels that can be easily assembled to form walls of any height or shape; sturdy hardware and ties especially designed to speed erection and stripping. The combination insures a fine job completed in a surprisingly short time with real savings in labor and material costs.

2 SYMONS ENGINEERING SERVICE

. . . is set up to furnish you complete form layouts and job cost sheets on your form work. There is no charge for this service. You just send your plans, we do the rest. You'll be pleased with the clear picture of your job (its costs, bill of materials, and labor saving methods) that the Symons Engineering Service provides.

3 SYMONS SALES SERVICE

. . . means regular on-the-job service. Symons salesmen are always available to make on-the-job recommendations of the forms and hardware needed and to see to it that materials arrive when promised. To further simplify construction, Symons salesmen will assist in the supervision of form erection to assure correct and fast set-up. Another feature of the Symons no charge service plan.

4 RENTAL-PURCHASE PLAN

. . . offers you the opportunity to use the Symons Forming System on a rental basis. Then, if you want to purchase the forms, the rental charge will apply on the purchase price.

Contractors throughout the country have tried the Symons 4-Point Plan and like it. Send in your request for the complete facts —no charge or obligation.

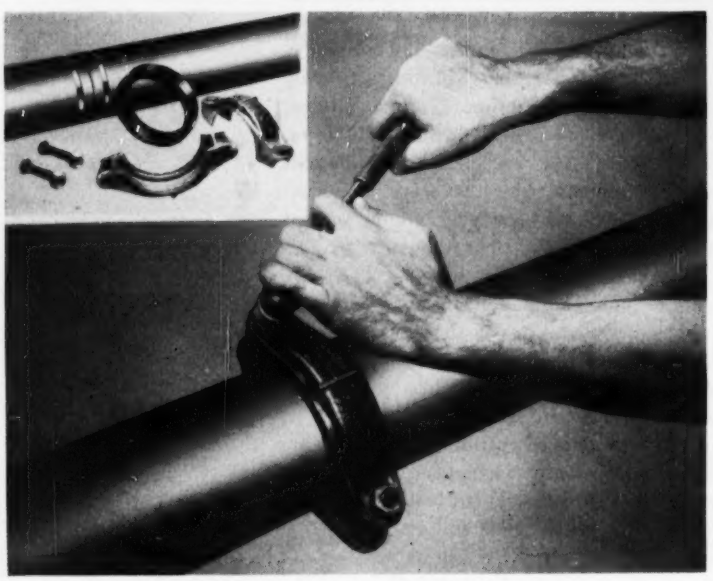
Symons

SYMONS CLAMP & MFG. CO., Dept. K3
4265 West Diversey Ave., Chicago 39, Ill.

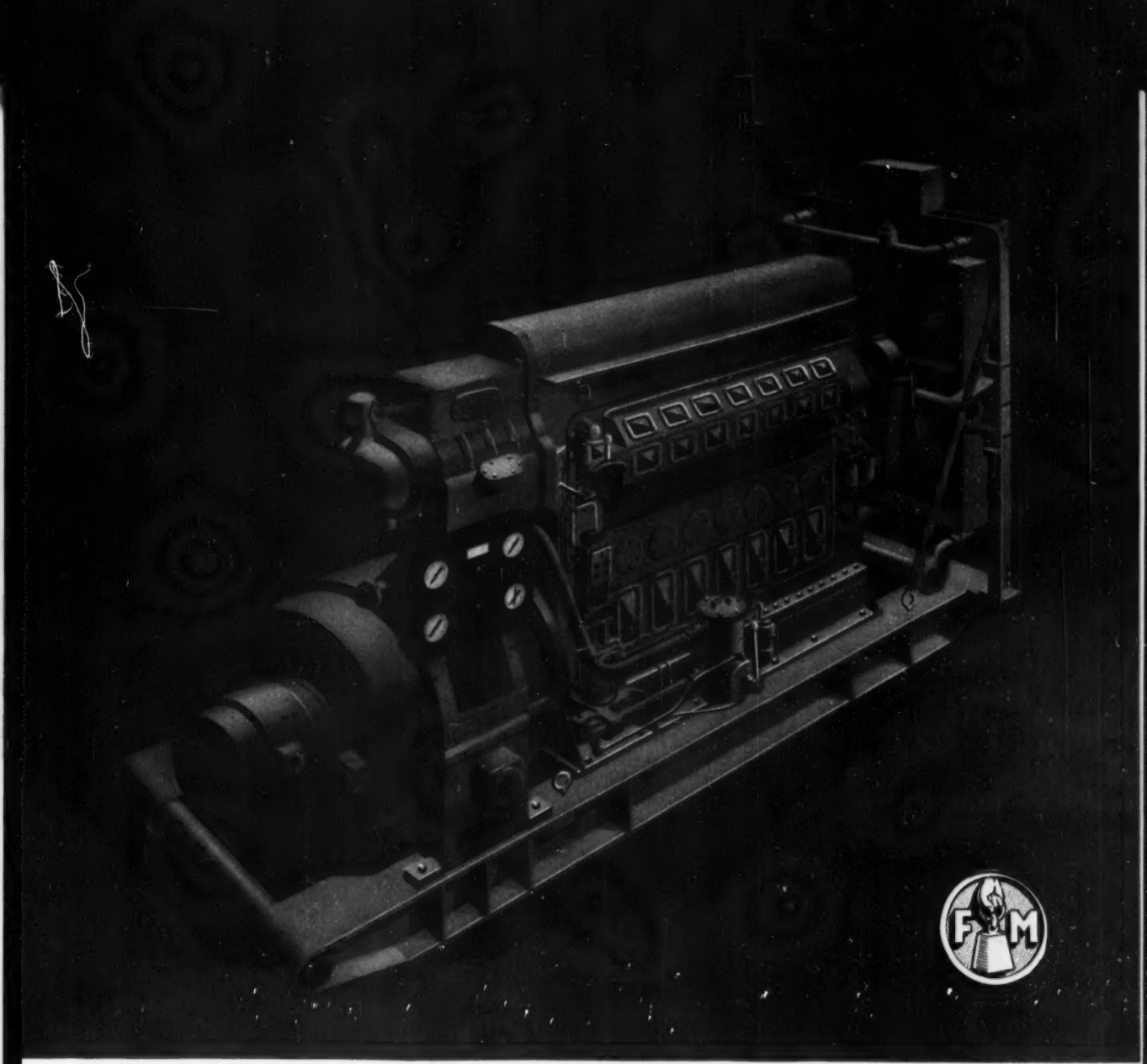
Lift makes trucks self-loading

A line of loaders—adaptable for use on almost any truck—has been designed to convert trucks into self-loading truck cranes without reducing the effective carrying capacity of the basic vehicle. The lift unit is available in capacities from ½ to 2 tons.

The crane unit mounts directly behind the cab and occupies from 16 to 18 in. of space. For installation, no



LIGHT WEIGHT AND LOW COST are claimed for a new line of couplings for grooved pipe. Available in two, three and four-inch sizes, the couplings reportedly remain leakproof under end pulls of 7,500 lbs, permit layout misalignment up to three degrees and withstand temperatures between 200 F. and minus 65 F. Sealing gasket is of synthetic rubber designed to resist harmful effects of oils and chemicals. Gustin-Bacon Mfg. Co., 210 W. Tenth St., Kansas City, Mo.



The Fairbanks-Morse Opposed Piston Diesel Model 38F 5¼. 225 to 750 horsepower.
Diesel Dual Fuel and Spark-ignition options.
Other O-P engines available in horsepower ratings to 2400.

. . . the price is more but the cost is less

You can buy many diesels for a little less than this Fairbanks-Morse OPPOSED PISTON Diesel . . . but no engine working at rated load can deliver power more reliably at less cost. The slightly higher price is quickly offset by the freedom from maintenance and service interruptions.

More engine hours of unfailing service mean fewer man-hours in maintenance and repair.

Fairbanks, Morse & Co., Chicago 5, Illinois

FAIRBANKS-MORSE

a name worth remembering when you want the best

DIESEL AND DUAL FUEL ENGINES • DIESEL LOCOMOTIVES • RAIL CARS • ELECTRICAL MACHINERY • PUMPS • SCALES • HOME WATER SERVICE EQUIPMENT • FARM MACHINERY • MAGNETOS

MADE Right
to ROLL Right!

• Let our engineers work with you on your bearing problems. No charge, no obligation.

ROLLWAY BEARING CO., INC.
Syracuse 4, N. Y.

ROLLWAY
BEARINGS

Maximum Joint Filling
WITH
Servicised
SELF-EXPANDING
CORK

▶ Recovers 50% Beyond Original Thickness After Compression
▶ Fully Compressible
▶ Non-extruding, Resilient

Ideal for large concrete structures or masses where substantial initial contraction is anticipated before any considerable amount of expansion takes place. 50% expansion beyond original thickness after compression keeps joint space filled, regardless of concrete movement. Made in ½" to 1" thicknesses; 2" to 12" (Standard) widths; also made in 24" and 36" widths on special order.

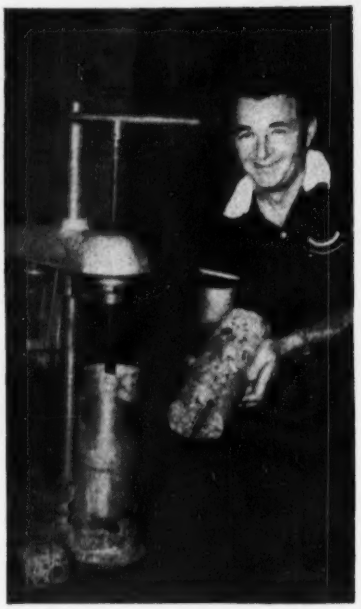
Write for Catalog and Complete details on Servicised Joint Fillers and Sealers.

SERVICISED PRODUCTS CORP.
6051 W. 65TH ST. • CHICAGO 38, ILL.

alteration of the truck body is required nor is there any reduction in the load carrying capacity of the bed —instead the entire body is moved back on the frame.

The loader is made in two models; one with an elevating mast and one with a "fold-over" superstructure. In the latter model, the top portion of the structure can be folded for traveling and for bridge or door clearance. On the elevating mast models the boom swings a full 360 deg. Boom swing on the "fold-over" models is limited to 170 deg.

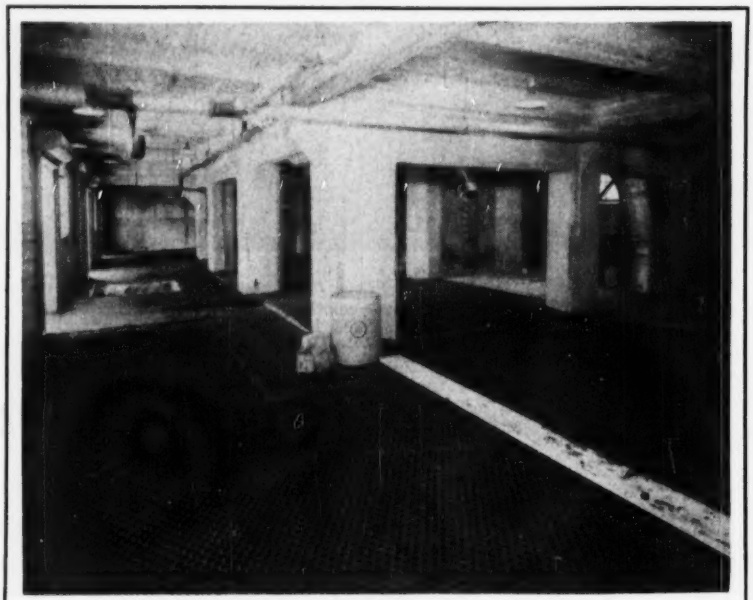
The winch used employs standard automotive parts to simplify operation and service and is powered by the truck engine through power take-off. RAY-LIND MFG. CO., IRON RIVER, MICH.



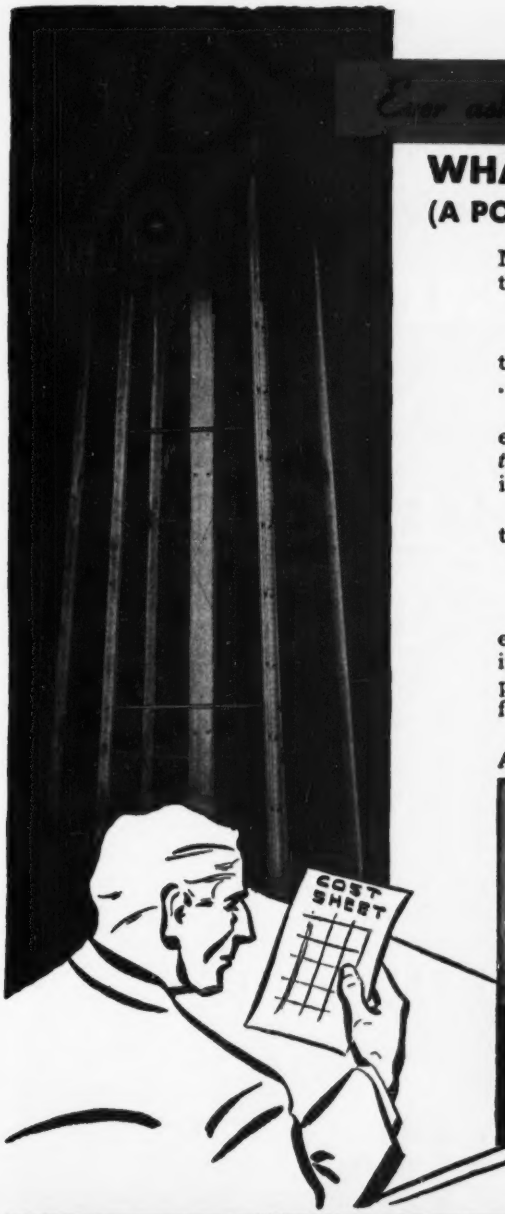
Large holes in concrete no problem for this Mole

Heralded as a method of drilling through anything at lowest cost, the mechanized Mole reportedly will drill ¼ to 6-in. dia holes in 18-in. concrete, through reinforcing bars or hard aggregate. Further, the drilling is said to be accomplished without dust, noise or spalling of the work surface.

Operating procedure consists simply of placing the machine over the desired spot, adding a special cutting compound and water to a cup over the drilling surface and turning on the electric motor. Wear on the drills



"PACKAGED UNIT" FLOORING combines a heavy steel mesh and filler as a complete unit for surfacing floors subjected to extra-heavy abuse. Steel-Rock is said to withstand impact as well as heavy loads with a minimum of maintenance. The resilient filler used in the grid compacts to the level of the steel ribs, thus deadening sound and reducing slipperiness while maintaining the wearing qualities of steel. The product may be applied over new or old surfaces of wood or concrete, inside or outside, at a depth varying from ⅜ to 1 in. United Laboratories, Inc., 16801 Euclid Ave., Cleveland, Ohio.



Ever ask your TREASURER . . .

WHAT *HE* THINKS OF YOUR TANKS?

(A POSEY IRON Bid Might Interest Him and YOU)

Most treasurers are apt to put cost first. And cost is certainly *not* the only factor to consider when buying steel plate construction.

But—

It's good engineering as well as good financial policy to refuse to pay a penny more for tanks . . . or pressure vessels . . . or stacks . . . than is necessary fully to meet *the standard desired.*

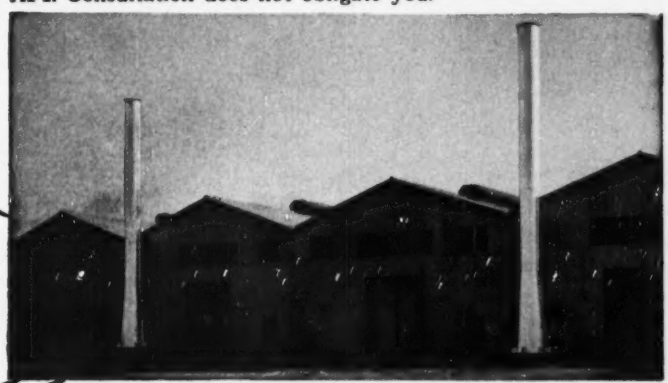
The Posey Iron Works offers you 42 years of money-saving experience over the full range of steel plate fabrication . . . *practical* engineering and design service that concentrates on structural integrity and safety rather than on cost-padding "frills".

That's why we say a Posey Iron bid might interest your treasurer as well as you.

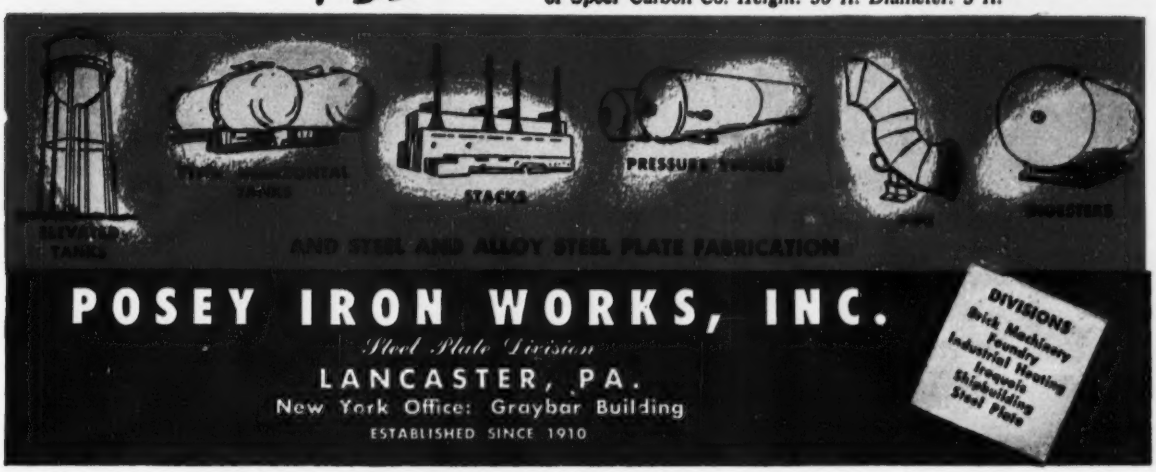
Edges of Plates Properly Prepared for Welding . . .
Electrodes Carefully Selected

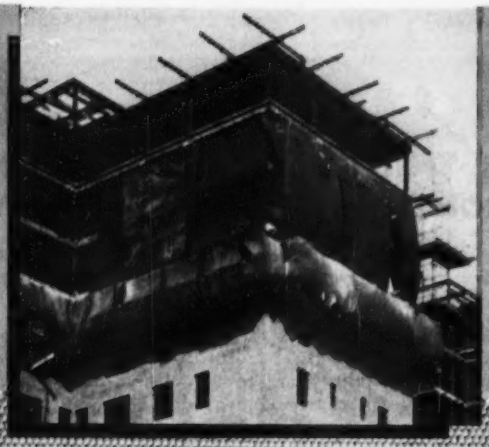
Perhaps more than any other production step, welding influences tank costs and structural soundness. Every electric welder in Posey's shops is fully qualified. No plate is welded without proper preparation of edges . . . electrodes are chosen after careful consideration of requirements.

Posey meets all standard codes including **ASME; API-ASME; API.** Consultation does not obligate you.



Posey Iron Works self-supporting stacks installed at the Niagara Falls Plant of the International Graphite & Electrode Division of Speer Carbon Co. Height: 50 ft. Diameter: 3 ft.



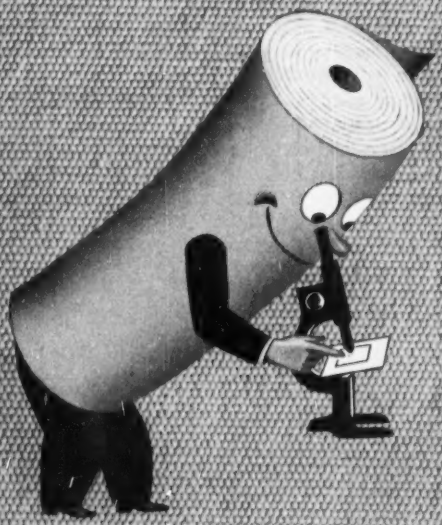


Fabric UNIFORMITY Makes The Big Difference In

TARPAULINS

MT. VERNON EXTRA

GIVES YOU GREATER FABRIC UNIFORMITY



Determining Yarn Tensile Strength with 300-lb. vertical test. One of a series of comprehensive laboratory controls throughout production to assure uniformity in all Mt. Vernon-Woodberry products.

Mt. Vernon-Woodberry Mills

Branch Offices: Chicago • Atlanta
Baltimore • Boston • Los Angeles

TURNER HALSEY
COMPANY
Selling Agents
40 WORTH ST NEW YORK

average about ½ in. per foot of concrete drilled and they may be resharpened or, more accurately, regrooved with a hack saw in a few minutes. Cost of a four-inch Mole drill is said to be less than 1/10 that of many carbide tipped types.

The machine may be used to bore through concrete, stone, glass, tile, marble, etc., and speed of drilling will depend on the material; however, ¼ to ¾ in. per min. can be expected. MOLCO DRILLING MACHINE CO., 1100 20TH ST., N. W., WASHINGTON, D. C.

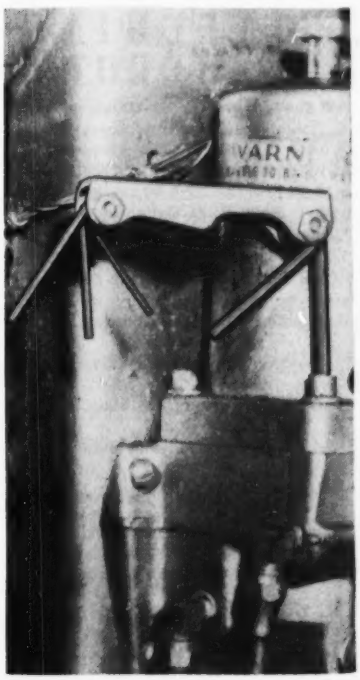
Unique handle keeps Allen wrench set complete

A socket-head set for driving standard Allen head bolts and screws is contained in a knife-like folding handle. Although this is small enough to fit into a pocket, the design permits greater leverage at any angle.

The Smitty, as it is called, contains five sizes of shafts that swing out of the holder into driving position. The device insures that a complete set is available when needed.

Model P-5 fits set screws #10 to 5/16 in., inclusive, and cap screws #5 to ⅜ in., inclusive. Model P-6 fits set screws #3 to ⅜ in. and cap screws #1 to 12, inclusive.

As on all Allen wrenches, worn ends can be ground off or individual wrenches may be replaced. H. D. HUNTER TOOL CO., WHITTIER, CALIF.



See How You Can Save With OZALID Copies!

Write *Today* for free, 48-page, "100's of Uses" Booklet Showing How *Direct Copies* with Ozalid Speed Paperwork and Cut Costs in All Departments.

OZALID, Dept. ER-13
General Aniline and Film Corp.
Johnson City, N. Y.

Gentlemen:
Please send me "100's of Uses for Ozalid."

Name.....
Company.....
Position.....
City.....State.....
Or call the OZALID distributor listed in your local classified telephone directory.

Cut Copying Costs . . . use **OZALID**

Johnson City, N. Y. A Division of General Aniline & Film Corporation.
"From Research to Reality."
Ozalid in Canada—Hughes Owens Co., Ltd., Montreal.

PUBLICATIONS

Pneumatic handling—A new 8-page "Transporter" bulletin includes problem-solution-result reports covering municipal waste handling installations and others. The handling systems, designed around the Yeomans Transporter pneumatic ejector, are used primarily for handling heavy materials that cannot be successfully handled by centrifugal pumps or economically handled by mechanical conveyors. Write for Bulletin No. 4501.—YEOMANS BROS. CO., 1999 NO. RUBY ST., MELROSE PARK, ILL.

Mobile radio—Ten new bulletins issued by G-E Commercial Equipment Department describe the latest improvements in ten of the company's radio communications equipments for industrial applications. The new bulletins cover six base station combinations and four mobile combinations. The latter include two 10-watt units, a 30-watt and a 50-watt unit. One of the 10-watt combinations features the company's new front-mount control unit designed to permit more convenient mounting under a dashboard or on materials handling vehicles where space is critical. INQUIRY SECTION, G-E ELECTRONICS DIV., ELECTRONICS PARK, SYRACUSE, N. Y.

Masonry cement—A new brochure describes StoneseT, a white, nonstaining masonry cement that is said to give an attractive white or tinted mortar joint that improves the appearance of masonry walls. The brochure contains specification data and details for proportions and mixing this mortar cement. The user can also determine the quantity of StoneseT required for almost any wall with the aid of tables on the cubic feet of mortar required with brick walls, concrete, masonry walls, masonry unit walls of clay or concrete and modular clay tile. The 8-pager also includes federal and ASTM specifications met by this masonry cement. StoneseT Technical Catalog, DEPT. S, MEDUSA PORTLAND CEMENT CO., 1000 MIDLAND BLDG., CLEVELAND 15, OHIO.

Planetary type gear reduction—Advantages of using a 3 to 1 planetary type gear reduction in each wheel of the new Baker-Lull four-wheel drive Shoveloader are explained in an 8-page brochure. The literature also gives complete specification data on the new 1½-cu yd unit, such as loading capabilities and detailed tractor information.—THE BAKER-LULL CORP., 314 W. 90TH ST., MINNEAPOLIS, MINN.

ADVERTISERS IN THIS ISSUE

Acker Drill Co. ... 111
Acrow, Inc. ... 15
Adams Mfg. Co., J. D. ... 89
Aetna Casualty & Surety Co., The ... 116
Air Placement Equipment Co. ... 127
Allis-Chalmers Mfg. Co. ... 58, 59
American Hoist & Derrick Co. ... 57
American Zinc Institute ... 54

Barber-Greene Co. ... 90
Barco Mfg. Co. ... 141
Belmont Iron Works ... 86
Berger & Sons, Inc., C. L. ... 60
Bethlehem Steel Co. ... 109
Blaw-Knox Equipment Div., Blaw Knox Co. ... 34
Bruning Co., Inc., Charles ... 91
Bucyrus-Erie Co. ... 78, 79
Bulkley-Dunton Processes, Inc. ... 44
Byers Co., A. M. ... 2nd Cover

Cast Iron Pipe Research Assoc., Inc. ... 84, 85
Caterpillar Tractor Co. ... 68, 69
Ceco Steel Products ... 56
Cement Gun Co. ... 119
Chicago Pneumatic Tool Co. ... 55
Cities Service Companies ... 11
Cleaver Brooks Co. ... 71
Cleveland Trencher Co. ... 7
Coffing Hoist Co. ... 94
Commercial Shearing & Stamping Co. ... 67

Detroit Steel Products Co. ... 126
Dodge Corp., F. W. ... 140
Dorr Co. ... 119
Douglas Fir Plywood Assn. ... 112, 113
Dresser Mfg. Div., Dresser Industries ... 37
Dudgeon Inc., Richard ... 130

Eastman Kodak Co. ... 65
Economy Forms Corp. ... 134
Electric Steel Foundry ... 70

Fairbanks-Morse Co. ... 161
Felker Mfg. Co. ... 102
Flockhart Foundry Co. ... 31
Foundation Equip. Corp. ... 2
Franki Foundation Co. ... 63
Fuller & Co., Geo. A. ... 83
Fuller Mfg. Co. ... 159

Gar Wood Industries, Inc., Findlay Div. ... 72
Gardner-Denver Co. ... 10
Gledhill Road Machy. Co. ... 111
Goodyear Tire & Rubber Co. ... 1
Grandall Div., of the Warner & Swasey Co. ... 121
Griffin Wellpoint Corp. ... 134
Gunite Concrete & Const. Co. ... 120
Gunite Construction Corp. ... 108

Hardinge Co., Inc. ... 75
Healy-Ruff Co. ... 98
Heil Co., The ... 81
Hetherington & Berner, Inc. ... 130
Hewitt-Robins, Inc. ... 128, 129

Industrial Brownhoist Corp. ... 116
Insley Mfg. Corp. ... 82
Irving Subway Grating Co. ... 98

Johnston Pump Co. ... 107
Josam Mfg. Co. ... 115

Kinnear Mfg. Co. ... 124
Koehring Co., The ... 92, 93

Laclede Steel Co. ... 115
LeRoi Co. ... 100, 101
Leschen Wire Rope Div., H. K. Porter Co., Inc. ... 14
Lewis & McDowell, Inc. ... 98
Lufkin Rule Co. ... 76

Mahon Co., R. C. ... 157
Master Builders Co. ... 3rd Cover
Maxon Construction Co., Dumpcrete Div. ... 123
Mayo Tunnel & Mine Equip. Co. ... 108
McKiernan-Terry Corp. ... 132
Minneapolis-Moline ... 104
Moretrench Corp. ... 87

Naylor Pipe Co. ... 106
Newport News & Shipbuilding & Drydock Co. ... 52
Northwest Engineering Co. ... 3

Owen Bucket Co. ... 88
Ozalid Products Div., General Aniline & Film Corp. ... 165

Patent Scaffolding Co. ... 18
Peerless Pump Div., of Food Machy. Corp. ... 49
Pennsylvania Drilling Co. ... 116
Perlite Div., Gt. Lakes Carbon Corp. ... 105
Pipe Linings, Inc. ... 131
Pittsburgh Coke & Chemical Co. ... 6
Pittsburgh-Des Moines Steel Co. ... 125
Pittsburgh Steel Products Co. ... 135
Portland Cement Assn. ... 46
Posey Iron Works, Inc. ... 163

Raymond Concrete Pile Co. ... 95
Reynolds Metal Co., Inc. ... 122
Robertson Co., H. H. ... 12
Rollway Bearing Co. ... 162

Sauerman Bros., Inc. ... 114
Scheu Products Co. ... 124
Schramm, Inc. ... 62
Servicised Products Co. ... 162
Shell Oil Co. ... 4, 5
Sherman Products, Inc. ... 108
Sika Chemical Corp. ... 38
Snow-Nabstedt Gear Corp. ... 86
Sparling Meter Co. ... 118
Spencer, White & Prentis, Inc. ... 118
Sprague & Henwood, Inc. ... 86
Staedtler Co., J. S. ... 53
Standard Oil of Calif. ... 103
Standard Oil of Indiana ... 73
Stang Corp., John W. ... 20
Stanpat Co. ... 133
Symons Clamp & Mfg. Co. ... 160

Terry Steel Contractors, Inc. ... 48
Texas Co. ... 4th Cover
Thew Shovel Co., The ... 97
Timber Engineering Co. ... 80
Timken-Detroit Axle Co. ... 13
Timken Roller Bearing Co. ... 77
Tinney Drilling Co. ... 118
Tousey Varnish Co. ... 99
Tower Co., H. A. ... 94
Truscon Steel Co. ... 117
Turner-Halsey Co. ... 164

Union Mercantile Co. ... 118
U. S. Pipe & Foundry Co. ... 66
U. S. Steel Corp. ... 8, 9
United Steel Fabricators, Inc. ... 120
Universal Concrete Pipe Co. ... 64
Universal Form Clamp Co. ... 32

Vibroflotation Foundation Co. ... 140
Vickers, Inc. ... 74

Weyerhauser Sales Co. ... 131
Williams Co., J. H. ... 120
Wisconsin Motors Corp. ... 76
Wood Co., R. D. ... 107
Worthington Corp. ... 16

Yeomans Brothers Co. ... 158
Youngstown Sheet & Tube Co. ... 110

Professional Services ... **155**

SEARCHLIGHT SECTION
(Classified Advertising)
H. E. Hilty, Mgr.

Employment ... 149, 150
Educational ... 150
Business Opportunities ... 150
Notices ... 146, 147, 148
Equipment
For Rent, Sale, Wanted

ENGINEERING NEWS-RECORD

330 West 42 St., New York 36—LOngacre 4-3000
D. S. Robertson, Advertising Sales Mgr.
Howard T. Olsen, Business Manager

ADVERTISING REPRESENTATIVES:

New York, 36—330 W. 42 St.,
M. J. Storz, E. A. Callahan, Jr.

Chicago, 11—520 No. Michigan Ave.,
F. G. Hudson, L. H. Hunt, W. G. Payne

San Francisco, 4—68 Post St.,
R. E. Dorland

Philadelphia, 3—17th and Sansom Sts.,
A. B. Cozzens

Cleveland, 15—Hanna Bldg.,
E. E. Duff, Jr.

Detroit, 26—Penobscot Bldg.,
B. F. Horn

St. Louis, 8—Continental Bldg.,
W. E. Donnell

Los Angeles, 17—1111 Wilshire Blvd.,
H. L. Keeler

Atlanta, 3—Rhodes-Haverty Bldg.,
H. L. Sidur

Dallas, 1—First National Bank Bldg.,
J. H. Cash

OTHER SALES OFFICES:
Pittsburgh, 22—738-39 Oliver Bldg.
Boston, 16—350 Park Square Bldg.
London, McGraw-Hill House

EDITORIALS

Bidding for engineering services

ENGINEERING NEWS-RECORD has come off second best—as it feared that it would—in an interchange of correspondence relative to bidding for engineering services. But, as a result, we have received a letter that challenges the status quo on this controversial subject with such honesty, good sense and logic that we are convinced that we should share it with the profession. It is reproduced on the following page.

The letter is the end result of an attempt on our part to adhere to the tenet of professional conduct that labels it "unprofessional and inconsistent with honorable and dignified bearing for a member of the American Society of Civil Engineers to participate in competitive bidding on a price basis to secure a professional engagement." While this is the wording of the ASCE Code of Ethics it is not essentially different from that used by other engineering societies.

Our experience suggests that all these societies are merely tilting at windmills, and that the sooner the stigma of unethical conduct is removed from the practice of bidding for engineering services the better. We said as much in a series of three editorials back in 1947 (Jan. 9, June 26, and Sept. 4), and are now encouraged to return to the subject by a happening that generated the correspondence referred to above.

This happening was the publication in our own pages of the following advertisement:

> NOTICE TO Bridge Engineers: Bids will be received on October 27, 1953 for engineering services in connection with a double leaf bascule superstructure and supporting piers for a bridge over the Intracoastal Waterway near Charleston, S. C. Details may be obtained from the undersigned. C. R. McMillan, Chief Highway Commissioner, S. C. State Highway Department, Columbia, S. C.

The ad had been accepted and published under the normal routine applying to notices to bidders, and the fact had been overlooked that it applied to bidding for engineering services. Accordingly, since it seemed to invite action in direct violation of the Code of Ethics quoted above, we reasoned that it should not have been accepted (1) because we want to uphold any ethical standards that the best elements of the profession have set for themselves and (2) because it placed us in the position of selling something without value, since the advertiser would not—or should not—receive any replies to the ad from the men best qualified to do the work. We wrote Mr. McMillan to that effect and canceled the bill for the ad.

Mr. McMillan's reply, as will be evident from reading it, deflates our idealism and shows up our reasoning as fallacious. He had to advertise for bids on engineering services. That's the law in South Carolina. Moreover, he not only received bids; he received a total of fifteen from a class of specialists that is by no means numerous in the profession. And, finally, the bids were made on what must have been a price basis, since offerings were received that varied from 3 to 7% of the estimated cost of the bridge.

WHAT HAPPENED IN SOUTH CAROLINA is by no means unique. There are a good many other governmental units throughout the country, ranging from villages to states, subject to laws that require taking bids for contractural services. All of them must perforce ignore any unethical connotations of such practice—if indeed they are aware that they exist. And when they advertise they invariably receive bids from engineers—who do know of the unethical stigma, but feel either that it is unjust or not serious enough to justify their turning down a job opportunity to avoid it.

The procedure, which is accepted to accord with the code provision prohibiting bidding, is for the prospective buyer to interview a number of invited engineers personally, receive their proposals and weigh their qualifications. But, in contrast to this relatively confidential procedure, the tendering of sealed bids to be opened and compared is frowned upon. Yet it is Mr. McMillan's contention that the result would be the same "since in either case the major considerations would have been the experience and ability of the engineers and the fees to be charged for the work."

Actually there is little ground upon which to challenge Mr. McMillan's view when engineers are not selected on the basis of price alone. In fact, in that case the engineers who submit bids probably can not be considered in violation of the code. But we would go a step further and raise the question as to whether they can really be considered "unethical" even when price alone is the basis of selection, so long as each has the necessary qualifications.

It may readily be conceded that it would be unwise for a buyer to accept the lowest price regardless of other considerations, and unwise, too, for an engineer to bid low in an attempt to get a job for which he has neither the qualifications nor the facilities. In either case, however, it is merely poor business judgment and not ethics that is involved. And in either case the punishment is inherent—in the form of an inferior product for the buyer and of a tarnished reputation for the engineer—and not merely threatened in the form of some sort of disciplinary action when a violation of ethics is charged.

THE TRUTH OF THE MATTER IS that the attempt to prohibit competitive bidding on a price basis on ethical grounds is self-defeating and therefore unworkable. Not only does it invite men of high moral character to

(*Continued on next page*)

circumvent this provision of the code if they are to stay in business, but it offers no effective bar to keeping unqualified men from securing the jobs. In many cases of public work, moreover, the law requires action in direct violation of the code provision. Finally, it is unworkable since non-adherence to the code is only punishable by disciplinary action on the part of the societies, which action is difficult to take and is seldom, if ever, resorted to.

THE ONLY SOLUTION seems to be a modification of the code to validate a realistic procedure that can be widely supported as serving the interests of both the buyer and seller of engineering services. To that end, we return to a suggestion made in these pages June 26, 1947, namely, to sanction the submission of competitive proposals for engineering engagements under conditions that will minimize the possibility of an award being made on the basis of price alone. Thus the rules could specify that proposals could be made in writing to be publicly opened and read on a given date, and that each proposal must be accompanied by an outline of the engineer's qualifications, a detailed statement of the services that he intends to render and the amount or percentage of his fee.

Such a procedure would require public officials to operate entirely in the open, thus affording the engineer protection against favoritism, which he sometimes now lacks. At the same time it would protect the public official from political pressure and from having to award a contract to an obviously unqualified engineer just because he submitted the lowest bid. With all of the qualifications and proposals made public, and with the schedule of minimum fees established by the profession as a guide, the public official could award the contract to the lowest qualified bidder, which is his objective no matter what procedure is followed. So long as qualifications are made paramount, price remains in the secondary position where the present code provision seeks to keep it.

FOR TREATING THE SUBJECT of bidding for engineering services at this length we can only plead our belief that its present unsatisfactory state is a serious threat to the high professional standards that have been built up over many years. When an engineer of Mr. McMillan's standing is legally forced into the position of inviting non-compliance with a code of ethics, when as many as fifteen engineers accept the invitation regardless of the code, and when a number of other engineers are denied the privilege of offering their services because they try to follow what has been prescribed as proper professional conduct, something is basically wrong.

We believe that the fault lies in labeling competitive bidding for engineering services as unethical instead of recognizing it as a legitimate method of doing business. Such recognition would not mean

SOUTH CAROLINA
STATE HIGHWAY DEPARTMENT
COLUMBIA

October 28, 1953

Mr. Waldo G. Bowman, Editor
Engineering News-Record
330 W. 42nd Street
New York 36, N. Y.

Dear Mr. Bowman:

I have your letter of October 26 with reference to notices inserted by this Department in the classified advertising section of the October 8 and October 15 issues of the Engineering News-Record, concerning bids for engineering services in connection with a double leaf bascule span over the Intracoastal Waterway near Charleston, South Carolina.

The laws of this State require advertising for bids on all contractual services in connection with highway construction. In this particular case, a need arose for special engineering services and steps were taken to acquire these services in accordance with the Statutes. There was no choice on my part or that of other officials of this Department concerning the procedure to be followed.

I have been a member of the American Society of Civil Engineers for many years, but may not be fully informed in all respects concerning the ethical code of that organization. If, however, this code would act to prevent a state department from obtaining desired engineering services without violating the statutes governing its operation, it would appear that the code is in need of major revision.

Your reaction to the procedure followed in this case is not the only one of its kind. Following publication of our notice, several engineering firms suggested that a number of responsible engineers be invited to discuss the proposed work and that an engineer be selected after full discussion, which would naturally include the fees to be charged for the services rendered. I might point out that such a procedure would have brought about very much the same results as the receiving of bids, since in either case the major considerations would have been the experience and ability of the engineers and the fees to be charged for the work.

I note that you consider the notices published in the Engineering News-Record as of no value to this Department, but am in no position to argue this point since similar notices appeared in other publications. Fifteen bids were received for these services, and while no award has been made it is evident from data on hand that most of these firms are fully qualified to perform the work.

It might also be interesting to note that the bids varied from less than 3% to more than 7%. This wide variation would seem to indicate that the only way of establishing a fair price for such services is through competition, either openly, as required by Statutes of this State, or informally. The latter procedure seems to be considered more ethical in some circles, although any realistic consideration will, no doubt, lead to the conclusion that the result would in either case be somewhat the same.

The engineers who submitted proposals for these services were, I am sure, fully advised as to the legal requirements concerning highway contracts. I see no reason why any of them should be censured for offering their services on needed public work on the only basis under which these services might be obtained.

I am very sorry that the Engineering News-Record has been embarrassed by the publication of an engineering advertisement inserted by this Department in the section set aside for such notices to the engineering profession. I am requesting those responsible for handling this phase of our work to see that there is no occasion for similar embarrassment in the future.

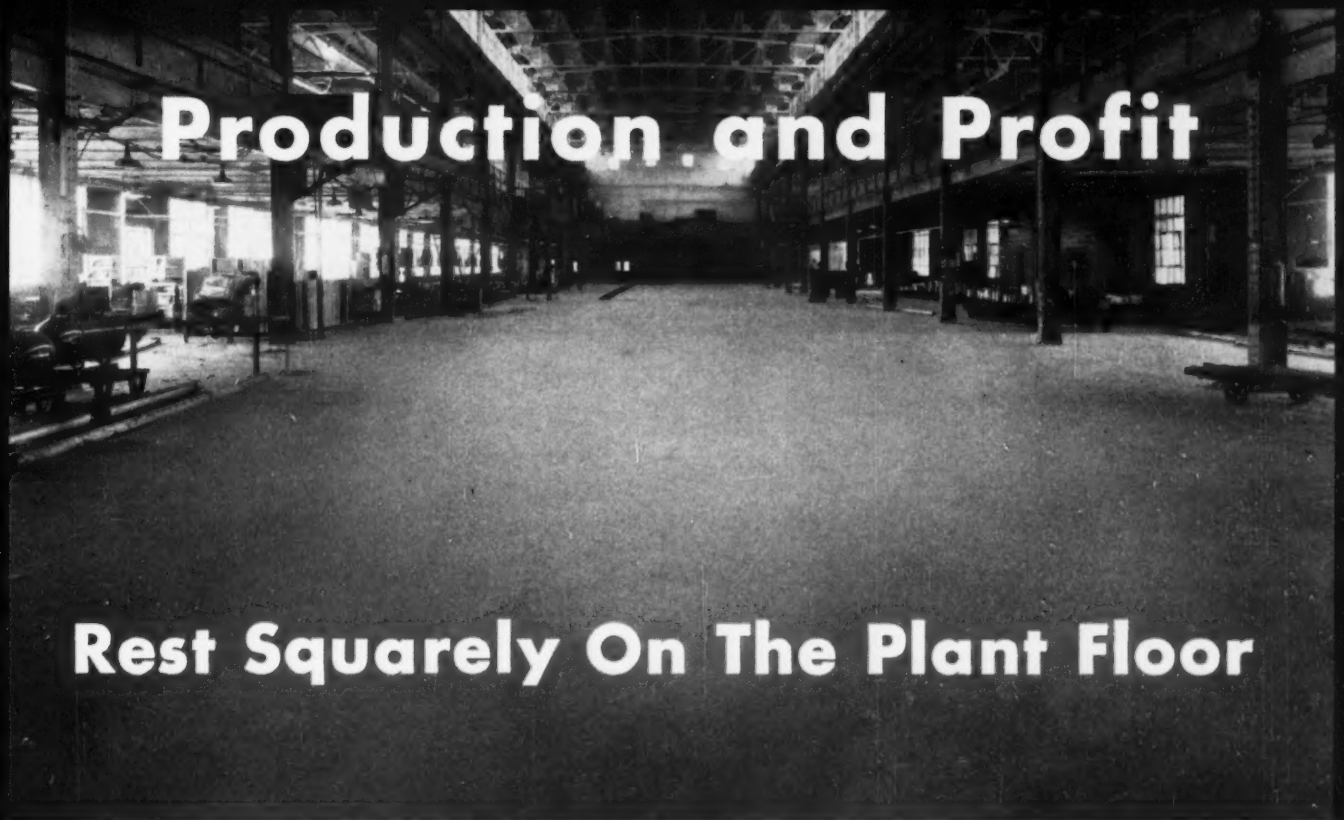
Yours very truly,

C. R. McMillan

C. R. McMillan,
Chief Highway Commissioner.

capitulation to the unsound idea that price is the only or even the most important consideration in engaging engineering services. It would only mean that for a definite prohibition on ethical grounds would be substituted a guide for business procedure compounded of realism and a concern for the best interests of client and engineer alike.

Prohibitions against competitive bidding should be removed from professional codes of ethics. After that the way will be clear to secure general agreement—and compliance—with what represents sound business procedure in contracting for engineering services—which will undoubtedly emphasize that qualifications and experience are much more important than price.



View of Masterplate Floor in The Bryant Heater Co. Plant, Indianapolis, Indiana. In excellent condition after 7 years of service. Archt.—Allen and Kelly; Contr.—Wm. P. Jungclaus Co.—both of Indianapolis, Indiana.

MASTERPLATE "Iron-Clad" Concrete Floors

Wear 4-6 Times Longer . . . Help To . . .

Many million square feet of Masterplate floors are in service in America's leading plants helping to maintain a smooth flow of production, reduce maintenance expense and improve plant safety.

Masterplate floors are 4-6 times more wear-resistant than the best plain concrete floor . . . are spark-safe, non-dusting, corrosion-resistant, easy-to-clean, and non-slip. Non-colored and colored.

A Masterplate "iron-clad" concrete floor is the lowest cost floor you can install in your new plant. Your badly worn concrete floors can be made *better* than new by resurfacing with Masterplate.

Full information on Masterplate and "see-for-yourself" demonstration kit supplied upon request . . . without cost or obligation.

- Maintain Production
- Hold Down Costs
- Improve Safety

• • • • •

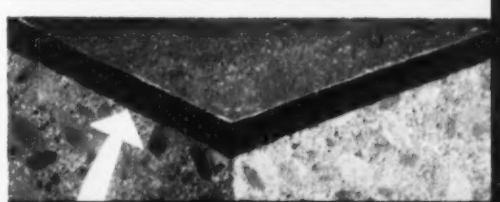
INSTALLED LIKE THIS . . .

APPLY Masterplate dust-coat to freshly floated concrete.

FLOAT dust-coat on surface of slab by hand or by machine.

TROWEL to desired finish — non-porous, easy-to-clean.

CURE with Master Builders membrane curing compound.



Section of A Masterplate Floor
Note Thickness of Iron-Armored Surface

the MASTER BUILDERS Co.

Subsidiary of American-Marietta Company

Building an ASPHALT highway by the "stage construction" method

South Dakota State Highway near Faulkton, after 10 year old road-mixed Asphalt surface had been resurfaced with hot-mix Texaco Asphaltic Concrete.

Spreading and compacting the new plant-mixed Texaco Asphaltic Concrete pavement, constructed by Megarry Brothers of St. Cloud, Minn.

South Dakota employed the "stage construction" method in improving this 16-mile section of State Highway with Asphalt. The first step was taken 10 years ago, when a Slow-curing Asphaltic Oil and crushed gravel were road-mixed on the highway to provide a smooth, dustless, all-weather riding surface 4 inches thick.

In 1952, after it had served traffic satisfactorily for a number of years, the road-mixed Asphalt surface provided the State with an excellent base for a heavy-duty Texaco Asphalt pavement of the plant-mixed type. The new pavement consisted of a 1-inch leveling course, spread by blade grader, and a 1½-inch wearing surface, laid by mechanical paver. A seal coat of Texaco Rapid-curing Cutback Asphalt, covered with crushed gravel, completed the pavement.

Improvement of a highway with Texaco Asphalt products by the "stage construction" method enables the road builder to keep pace with the demands of increasing traffic, while spreading costs over a number of years.

Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils offer the public official a wide choice of improvements for his streets or highways. Helpful information about all of these types is presented in two booklets, which you can secure with no obligation by writing our nearest office.

THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Minneapolis 3 Philadelphia 2 Richmond 19

TEXACO

REG. T. M.

TEXACO ASPHALT